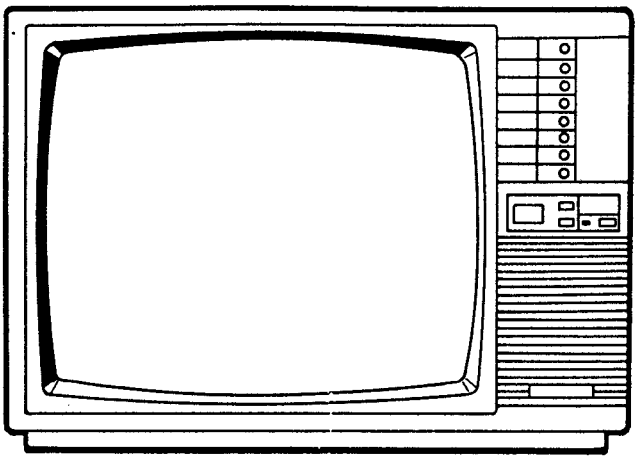
SEG®

SERVICE DATA
PAL SYSTEM

SEG® CT5120

20 INCH PORTABELE COLOR TV SET



SPECIFICATION

POWER INPUT RATING:	80Watts(nominal), AC220V, 50Hz
ANTENNA INPUT IMPEDANCE:	75 ohm unbalanced type for VHF and UHF
RECEIVING CHANNELS:	Any of 11 VHF channels....channel 2 to 12 Any of 49 UHF channels....channel 21 to 69 Any of CATV channels.....channel S1-S3 ,M1-M10 , U1-U10
INTERMEDIATE FREQUENCIES:	Picture I-F carrier frequency.....38.9MHz Sound I-F carrier frequency.....33.4MHz Color sub-carrier frequency.....34.47MHz
CHASSIS CONSTRUCTION:	IC Solid State
PICTURE TUBE:	Type No. 5109B22(measured on diagonal of viewable picture area) 90° Deflection
SOUND OUTPUT:	1.5Watts,(At 10 % harmonic distortion) MAX 3W
SPEAKER TYPE:	120 X 80mm . 8 ohm
CABINET:	Plastic Portable
DIMENSION:	Height.....405mm Width.....610mm Depth.....457mm
AUX TERMINAL:	Earphone jack
ANTENNAS:	VHF telesconic dipole and UHF (Accessory)

SAFETY INSTRUCTIONS

WARNING: BEFORE SERVICING THIS CHASSIS, READ THE "X-RAY RADIATION PRECAUTION" "SAFETY PRECAUTION " AND "PRODUCT SAFETY NOTICE " DESCRIBED BELOW.

X-RAY RADIATION PRECAUTION

1. Excessive high voltage can produce potentially hazardous X-RAY RADIATION. To avoid such hazards,the high voltage must not be above the specified limit. The nominal value of the high voltage of. this receiver is 23KV at Max beam current (maximum brightness) under 220 AC power source.
   The high voltage must not under any circumstances, exceed 25KV. Each time a receiver requires servicing, the high voltage should be checked following the HIGH VOLTAGE CHECK procedure in this manual.
   It is recommended the reading of the high voltage be recorded as of part of service record.
   It is important to use an accurate and reliable high voltage meter.
2. The only source of X-RAY RADIATION in this TV recever is picture tube. For continued X-RAY RADIATION protection, replacement tube must be exactly the same type tube as s cified in the parts list.
3. Some parts in this receiver have special safety-related characteristics for X-RAY RADIATION protection.For conti safety, part replacement to the PRODUCT SAFETY NOTICE be

SAFETY PRECAUTION

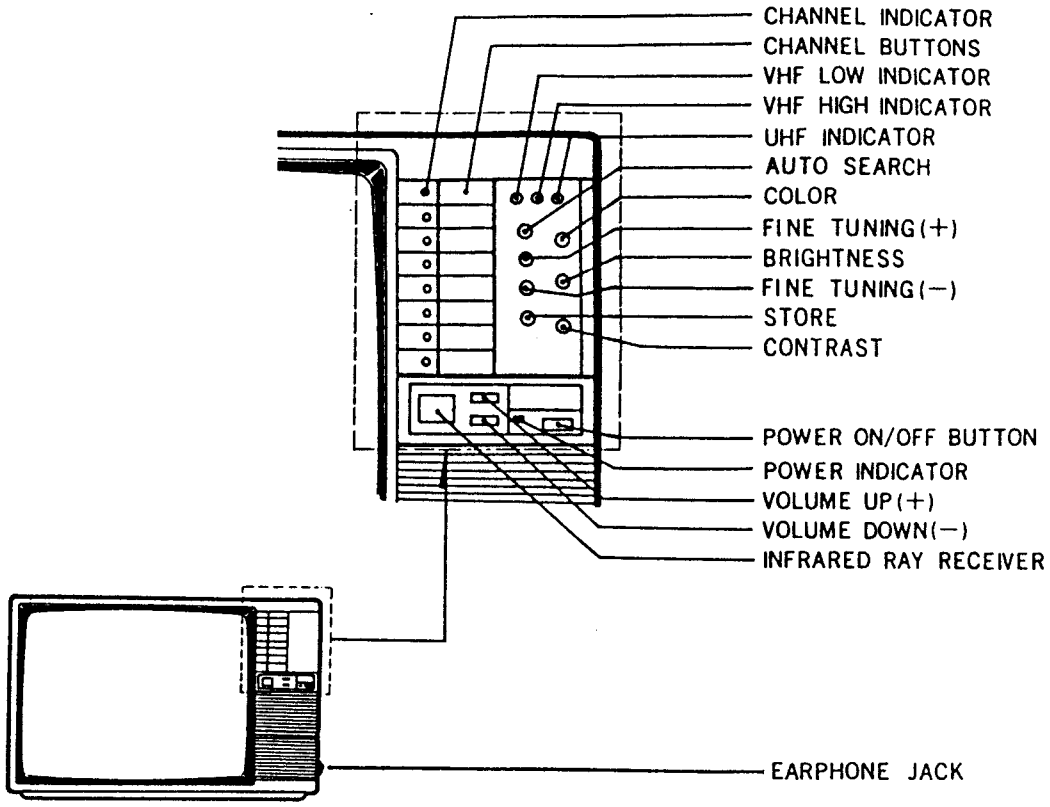
1. Potentials as high as 23000 volts are present when this receiver is operating. Operation of the receiver outside the cabinet or with back board removed involves a shock hazard from the receiver.
   1) Servicing should not be attempted by anyone who is not thoroughly familiar with the precautions necessary when working on high voltage equipment.
   2) Alway discharge the picture tube anode to the receiver chassis to keep off the shock hazard before removing the ar cap.
   3) Perfectly discharge the high potential of the picture tube before handling the tube.
      The picture tube is highly evacuated and if broken,glass fragments will be violently expelled.
2. If any Fuse in this TV receiver is blown, replace it with the FUSE specified in this chassis parts list.
3. When replacing parts or circuit boards, wind the lead wires around terminals before soldering.
4. When replacing a high wattage resistor(oxide metal film resistor) in circuit board, keep the resistor 10mm away fror circuit board.
5. Keep wires away from high voltage or high temperature components.
6. This receiver can be operated under AC 220Volt 50Hz.
   Never connect to DC supply or any other power.

PRODUCT SAFETY NOTICE

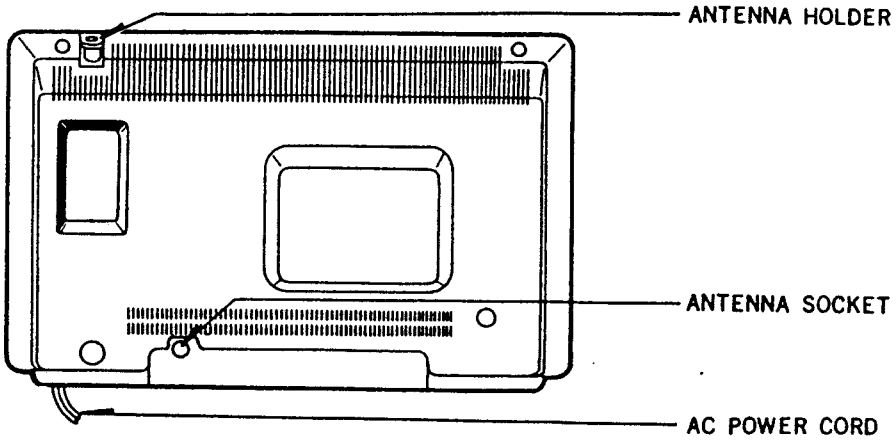
Many electrical and mechanical parts in this chassis have special safety-related characteristics are often passe unnoticed by a visual inspection and the X-RAY RADIATION protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this manual and its supplement,electrical components having such features are identified by a ⚠ in the schematic diagram and the parts list.
Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts which do not have the same safety characteristics as specified in the parts list may create X-RAY RADIATION.

LOCATION OF CONTROLS

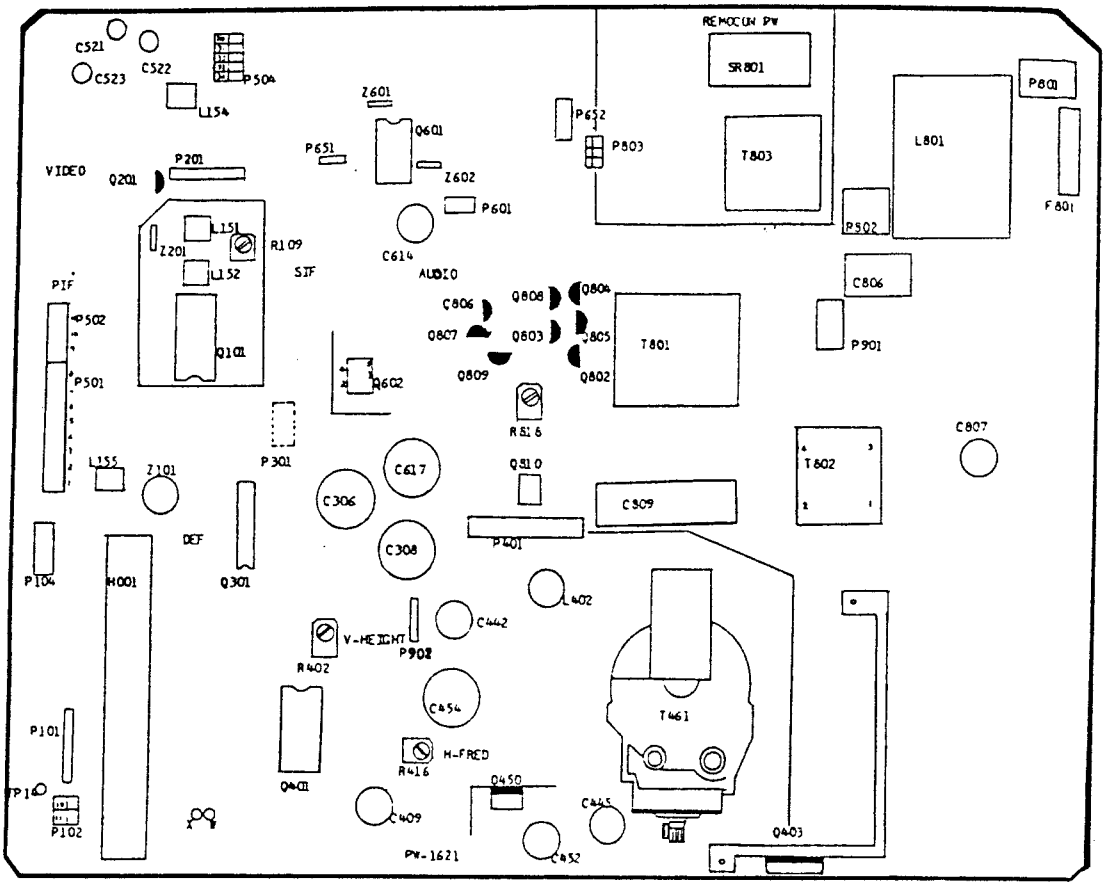
FRONT VIEW



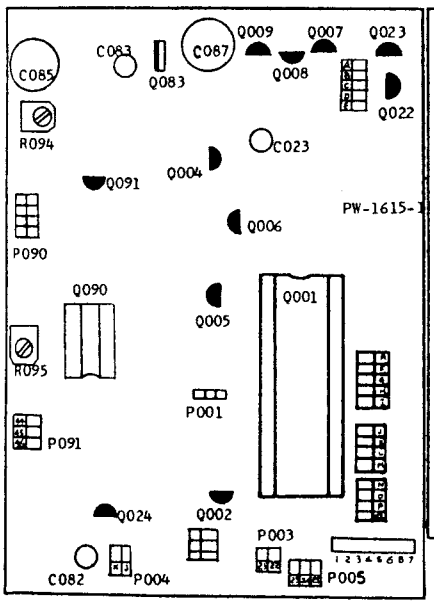
REAR VIEW

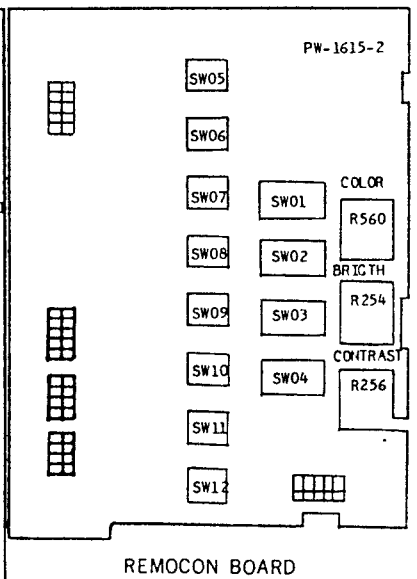


CHASSIS TOP VIEW

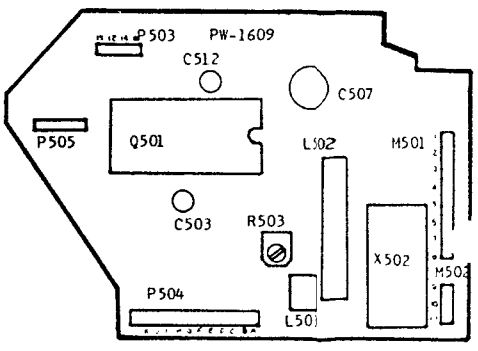


MAIN BOARD

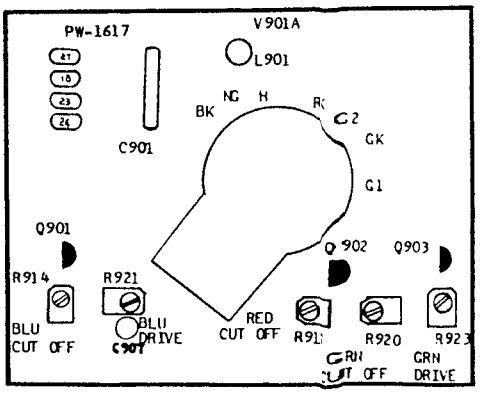




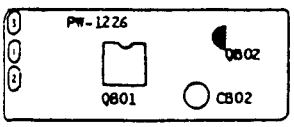
REMOCON BOARD



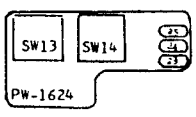
CHROMA BOARD



CRT BOARD



PRE-AMP BOARD



VOLUME BOARD

GENERAL INFORMATIONS

All adjustments are thoroughly checked and corrected when the receiver leaves the factory. Therefore the receiver should operate normally and produce proper color and B/W pictures upon installation. However,several minor adjustments may be required depending on the particular location in which the receiver is operated.
This receiver is shipped completely in cardboard carton. Carefully draw out the receiver from the carton and remove all packing materials.
Plug the power cord into a convenient 220Volts 50Hz AC two pin power output. Turn the receiver ON.
Check and adjust all the customer controls such as BRIGHTNESS, CONTRAST and COLOR controls to obtain natural color or B/W picture.

AUTOMATIC DEGAUSSING

A degaussing coil is mounted around the picture tube so that external degaussing after moving the receiver is normally unnecessary, providing the receiver is properly degaussed upon installation. The degaussing coil operates for about 1 second after the power to the receiver is switched ON.If the set is moved or faced in a different direction, the power switch must be switched off at least 10 minuted in order that the automatic degaussing circuit operates properly.
Should the chassis or parts of the cabinet become magnetized to cause poor color purity, use an external degaussing coil. Slowly move the degaussing coil around the faceplate of the picture tube,the sides and front of the receiver and slowly withdraw the coil to a distance of about 2 m before disconnecting it from AC source.
If color shading still persists,perform the COLOR PURITY ADJUSTMENT and CONVERGENCE ADJUSTMENTS procedures, as mentioned later.

AFC (Automatic Frequency Control) FIELD ALIGNMENT

1.Tune the set to an active channel and adjust fine tuning for best picture.
2.adjust L152 for the best tuned picture.

COLOR SYNC. ADJUSTMENT (C502)

1.Receiver a PAL color bar signal.
2.Connect pin #23 and #24 (Q501) with the short jumper wire.
3.Supply 12Volts to the pin 6 of Q501.
4.then the color stripes appear on the screen when the adjustment is incorrect. Adjust the variable capacitor (C502) so that the color bar pattern stands still or drifts slowly across the picture screen.
5.Remove the jumper wire and 12Volts.

+26 VOLT POWER SUPPLY ADJUSTMENT (R818)

CAUTION: +B voltage closly relates to the high voltage. To prevent hazardous X-RAY RADIATION, the +B voltage must be properly adjusted to +26Volts.
1.Tune in an active channel.(Adjust the BRIGHTNESS and CONTRAST controls for normal picture)
2.Check that the AC power line voltage is normal. (AC 220Volts,50Hz)
3.Connect a SSVM between D452 (+28V line) Main Board and chassis ground.
4.Adjust the +B ADJ.(R818) on MAIN board for +28V reading. Remove the VTVM.

HIGH VOLTAGE CHECK

CAUTION: There is no HIGH VOLTAGE ADJUSTMENT on this chassis.
1.Connect an accurate high voltage meter to the second anode of the picture tube.
2.Turn on the receiver. Set the BRIGHTNESS and CONTRAST controls to minimum.(zero beam current)
3.High voltage will be measured below 25KV.
4.Rotate the BRIGHTNESS control to both extremes to be sure the high voltage does not exceed the limit of 25kV under any conditions.

HORIZONTAL OSCILLATOR ADJUSTMENT

If there is an indication of unstable horizontal sync. adjust the HORIZONTAL HOLD control (R410) to remove the condition. Adjust the HORIZONTAL HOLD to the center of the pull-in range.

HEIGHT ADJUSTMENT

HEIGHT control (R402) on main board changes the size of the picture or pattern, having an equal effect on the top and bottom. Make final adjustment to overscan the mask 2 Cm at top and bottom.

FOCUS ADJUSTMENT

Adjust FOCUS control on FLYBACK TRANS.(T461) for well defined scanning lines in center area on the screen.

DELAYED R-F AGC ADJUSTMENT

1.Tune the set in the strongest station in your area
2.Turn AGC DELAY control(R109) on main board to fully counterclockwise position.
3.Adjust AGC DELAY control clockwise until noise (snow) disappears on the screen.

PAL MATRIX ADJUSTMENT

1. Tune in the color programme including the color bar ignals.
2. Set the COLOR control VR.to obtain the proper color
3. If the PAL MATRIX adjustment is incorrect, the Venetian Blind would appear in the color bars area. This case needs the adjustment.
4. At the first, adjust DL PHASE ADJ. Coil(L503) to minimize the Venetian Blind.
5. If the Venetian Blind appear, adjust 1H-DL ADJ. VR (R503) to minimize the Blind.
6. If the Venetian Blind still remains,adjust 1H-DL PHASE ADJ.(L503) to minimize the Blind again.
7. Adjust the BURST PHASE coil(L155) for the maximum of output response at the pin #2 of P501.
8. Repeat the item 5 and 6 procedures,adjust the R503 and L503 until the Blinddisappear when the capacitor is connected.

COLOR PURITY ADJUSTMENT

NOTE: Before attempting any purity adjustment, the receiver should be operated for at least fifteen minutes.
. Purity adjustment requires Rubber Wedge kit.

1. Demagnetize the picture tube and cabinet using a degaussing coil.
2. Turn the CONTRAST and BRIGHTNESS controls to maximum.
3. Adjust RED and BLUE CUT OFF controls(R917,R914) to provide only a green raster. Advance the GREEN CUT OFF control(R920) if necessary.
4. Loosen the clamp screw holding the yoke, and slide the yoke backward or forward to provide vertical green belt (zone) in the picture screen.
5. Removed the Rubber Wedges.
6. Rotate and spread the tabs of the purity magnet(see figure 4) around the neck of the picture tube until a green belt is obtained in the center of the screen. And at the same time,center the raster vertically by adjusting the magnet.
7. Move the yoke slowly forward or backward until a uniform green screen is obtained. Tighten the clamp screw.
8. Check the purity of the RED and BLUE raster by adjusting the CUT OFF controls.
9. Tighten the clamp screw of the yoke temporarily.
10. Obtain a white raster referring to CRT GREY SCALE ADJUSTMENT.
    Proceed with convergence adjustment.

CRT GREY SCALE ADJUSTMENT

1. Tune in an active channel.
2. Set the COLOR control Min,and BRIGHT Max.
3. Turn the SCREEN control (T401) fully counterclockwise
4. By rotating the RED,GREEN and BLUE CUT OFF controls (R917,R920,R914) clockwise from the minimum, set them to the Max 45° position.
5. Set the GREEN and BLUE DRIVE controls(R923,R921) to the middle position.
6. Disconnect the "U" pin on the main board.
7. Short temporarily terminals X and W on the main board with a jumper wire.
8. Rotate the SCREEN control gradually clockwise until the first line appears slightly on the screen.
   Then turn fully counterclockwise the two CUT OFF controls corresponding to the colors of the first and the second horizontal lines to eliminate the lines.
9. Rotate the SCREEN control gradually clockwise until the first horizontal line of a color (RED, GREEN,BLUE) appears slightly on the screen.
   Set the SCREEN control to this position.
   At the base of the color,rotate the remaining two CUT OFF controls gradually clockwise until the horizontal lines of each color appear slightly on the screen.
   Adjust the CUT OFF controls to obtain the slightly lighted horizontal lines in the same levels of three colors (RED, GREEN and BRUE).
   The lines may look like white if the CUT OFF controls are adjusted properly.
10. Remove a jumper wire between terminal X and W and reconnect the "U" marked pin.
11. Rotate the BRIGHTNESS and CONTRAST controls to the maximum .
12. Adjust the BLUE and GREEN DRIVE controls (R921,R923) to obtain proper white balanced picture in high light areas.
13. Rotate the BRIGHTNESS and CONTRAST controls to obtain dark grey raster. Then check the white balance in low brightness. If the white balance is not proper, retouch the CUT OFF controls and DRIVE controls to obtain a good white balance in both low and high light areas.

CONVERGENCE ADJUSTMENTS

NOTE: Before attempting any convergence adjustments, the receiver should be operated for at least thrity minutes.

◆ Center Convergence Adjustment ◆

1. Receiver crosshatch pattern with a color bar signal generator.
2. Adjust the BRIGHTNESS and CONTRAST controls for well defined pattern.
3. Adjust two tabs of the 4-pole magnets to change the angle between them (See figure 4) and superimpose red and blue vertical lines in the center area of the picture screen. (See figure 5)
4. Turn the both tabs at the same time keeping the constant angle to superimpose red and blue horizontal lines at the center of the screen.(See figure 5)
5. Adjust two tabs of 6-pole magnets to superimpose red/blue line and green one. Adjusting the angle affects the vertical lines and rotating both magnets affects the horizontal lines.
6. Repeat adjustment 3,4,5, with understanding red,green and blue movement, because 4-pole magnets and 6 pole magnets have mutual affection and it makes dots movement complex.

◆ Circumference Convergence Adjustment ◆

1. Loosen the clamping screw of deflection yoke to allow the yoke to tilt.
2. Put a wedge as shown in figure 3 temporarily.(Do not remove cover paper on adhesive part of the wedge)
3. Tilt front of the deflection yoke up or down to obtain better convergence in circumference.(See figure 5)
   Push the mounted wedge into the space between picture tube and the yoke to fix the yoke temporarily.
4. Put other wedge into bottom space and remove the cover paper to stick.
5. Tilt front of the yoke right or left to obtain better convergence in circumference.(See figure 5)
6. Keep the yoke position and put another wedge in either upper space. Remove cover paper and stick the wedge on picture tube to fix the yoke.
7. Detach the temporarily mounted wedge and put it in another upper space. Stick it on picture tube to fix the yoke.
8. After fixing three wedges, recheck overall convergence. Tighten the screw firmly to fix the yoke and check the yoke is firm.
9. stick 3 adhsive tapes on wedges.

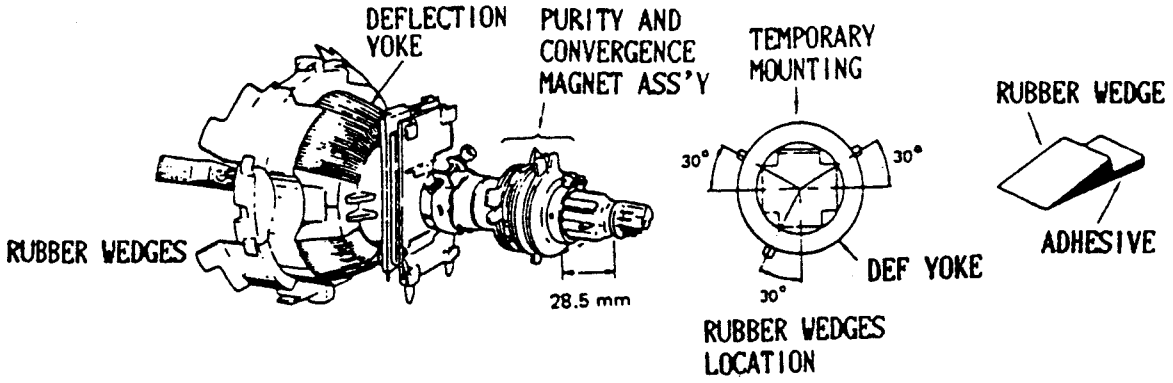


Figure 3

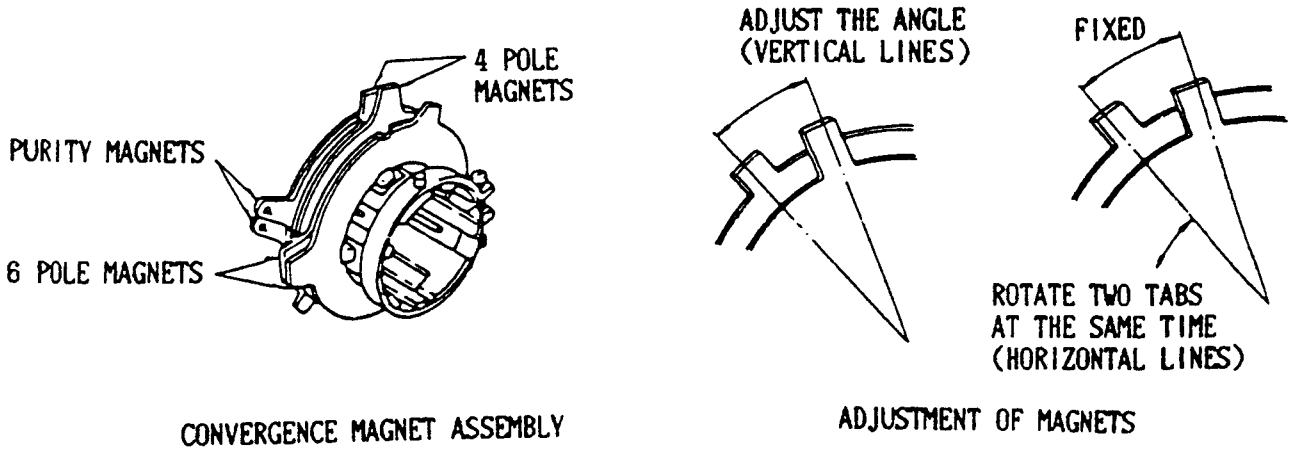
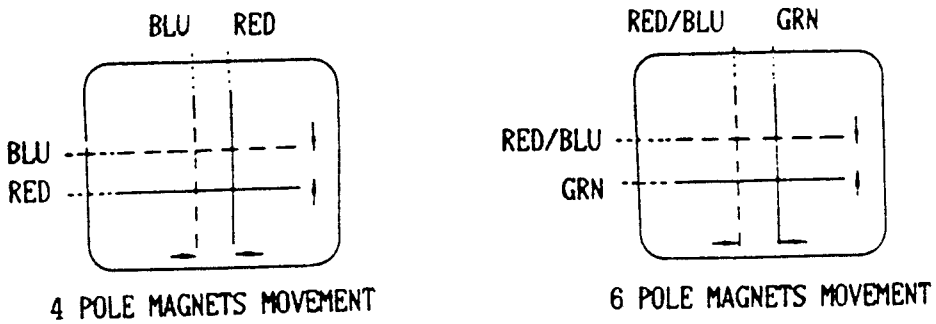
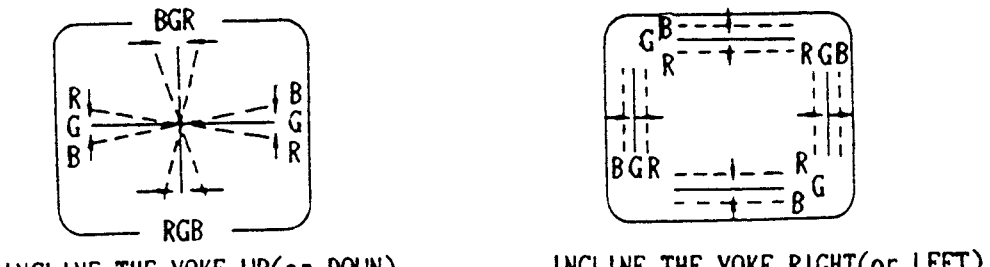


Figure 4



Center Convergence by Convergence Magnets



Circumference Convergence by DEF Yoke

Figure 5. Dot Movement Pattern

GENERAL ALIGNMENT INSTRUCTIONS

THIS RECEIVER IS TRANSISTORIZED AND SPECIAL CARE MUST BE TAKEN WHEN SERVICING, READ THE FOLLOWING NOTES BEFORE ATTEMPTING ALIGNMENT.

- Alignment requires an exacting procedure and should be undertaken only when necessary.
- Isolation transformer must be used to prevent shock hazard.
- The test equipment specified or its equivalent is required to perform the alignment properly.
  Use of equipment which does not meet these requirements may result in improper alignment.
- Correct matching of the equipment is essential.
  Failure to use proper matching will result in responses which cannot represent the true operation of the receiver.
- Use of excessive signal from a sweep generator can cause overloading of receiver circuit.
  Overloading should be avoided to obtain a true response curve.
  Insertion of markers from the marker generator should not cause distortion of the response.
- The AC power line voltage should be kept within from 220Volts while alignment.
- Do not attempt to connect of disconnect any wire while the receiver is in operation.
  Make sure the power cord is disconnected before replacing any parts in the receiver.

TEST EQUIPMENT

VACUUM-TUBE VOLTMETER ·····B and K Model 177 or equivalent
OSCILLOSCOPE·····B and K Model 1460,1465 or equivalent
DIRECT/LOW-CAPACITY PROBE ·····B and K Model PR-20,PR-14 or equivalent(Accessory of scilloscope)
COLOR-BAR/DOT/CROSSHATCH
GENERATOR ·····Leader Model LCG 388 or equivalent
SWEEP/MARKER ALIGNMENT
GENERATOR ·····B and K Model 415 or equivalent
BIAS SUPPLY ·····B and K Model PR-151 or equivalent(Combined in Model 415 generator)
MATCHING PAD·····B and K Model TP-41(Accessory of Model 415 generator)
ISOLATION TRANSFORMER ·····Voltage adjustable type having capacity of more than 150 watts
HIGH VOLTAGE PROBE·····B and K Model HV-40 or equivalent

PICTURE I-F SWEEP ALIGNMENT

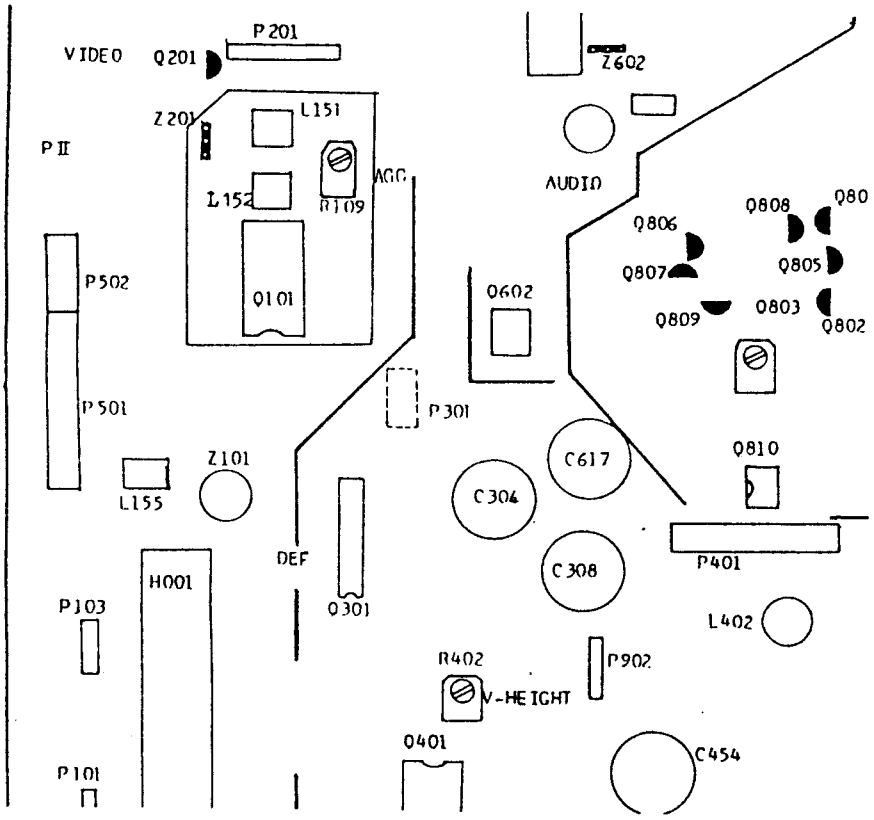


Figure 6 Picture I-F Sweep Alignment Point

PICTURE I-F STAIR ALIGNMENT

GENERAL.....Refer to figure 7 and 8 for test equipment connections and alignment point.
PRELIMINARY STEPS.....Supply +12V DC to main board.
STAIR S/G (PATTERN GENERATOR)/SIGNAL GENERATOR.....Connect to the test point of tuner.(Figure 7)
Tune to 38.9MHz signal.
OSCILLOSCOPE.....Connect the probe to R228 base.

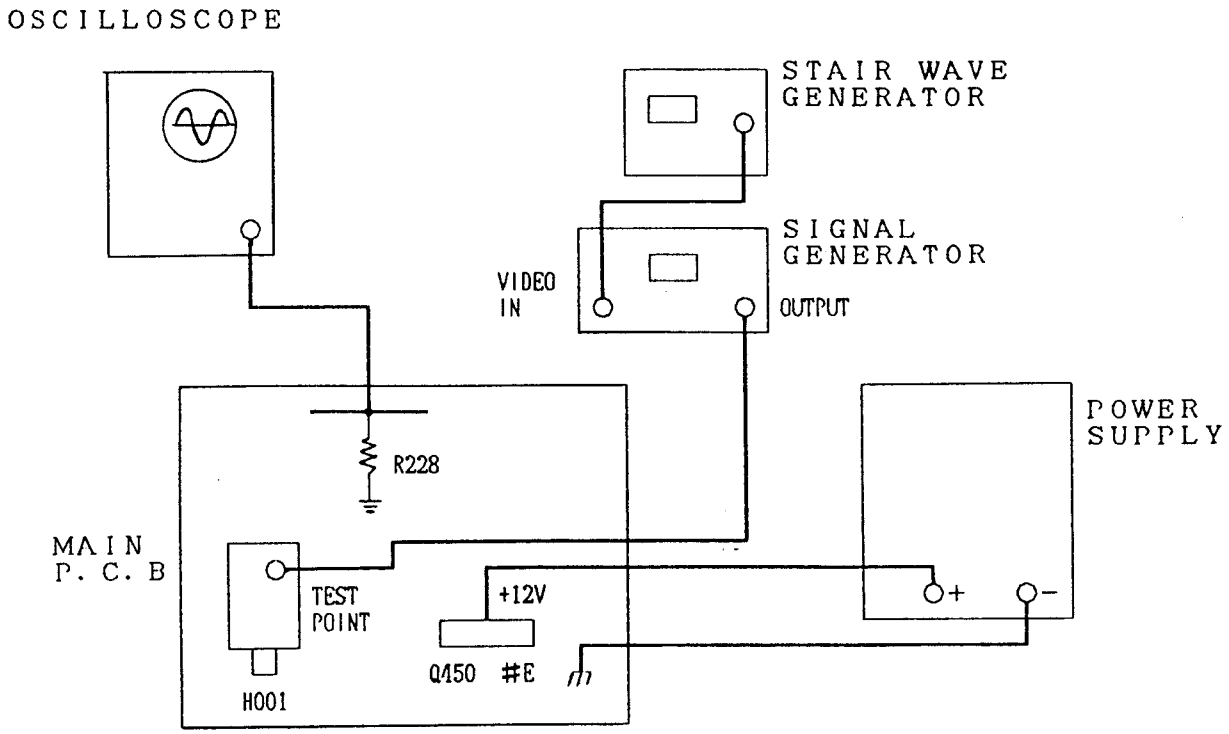


Figure 7

STEP	SIGNAL GENARATOR	ADJUST	REMARKS
L151 ALIGNMENT Set oscilloscope gain for 0.5V/Cm.			
DETECTOR COIL	Set 38.9MHz	L151	Adjust the stair case with L151 for best linearity.

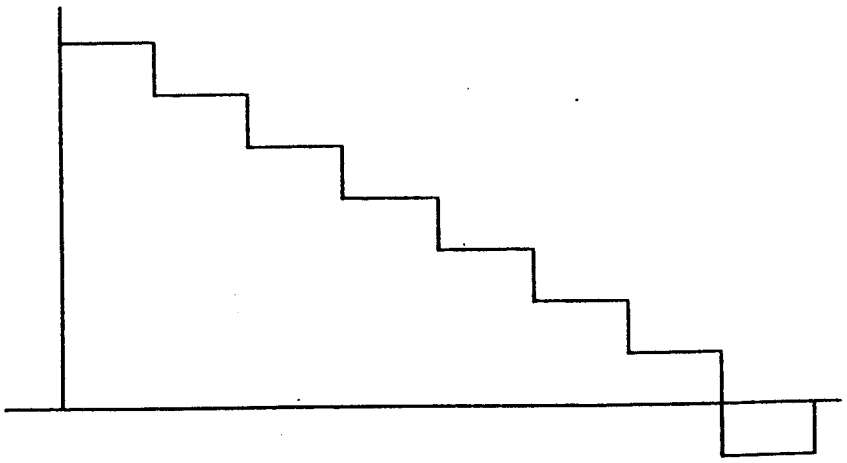
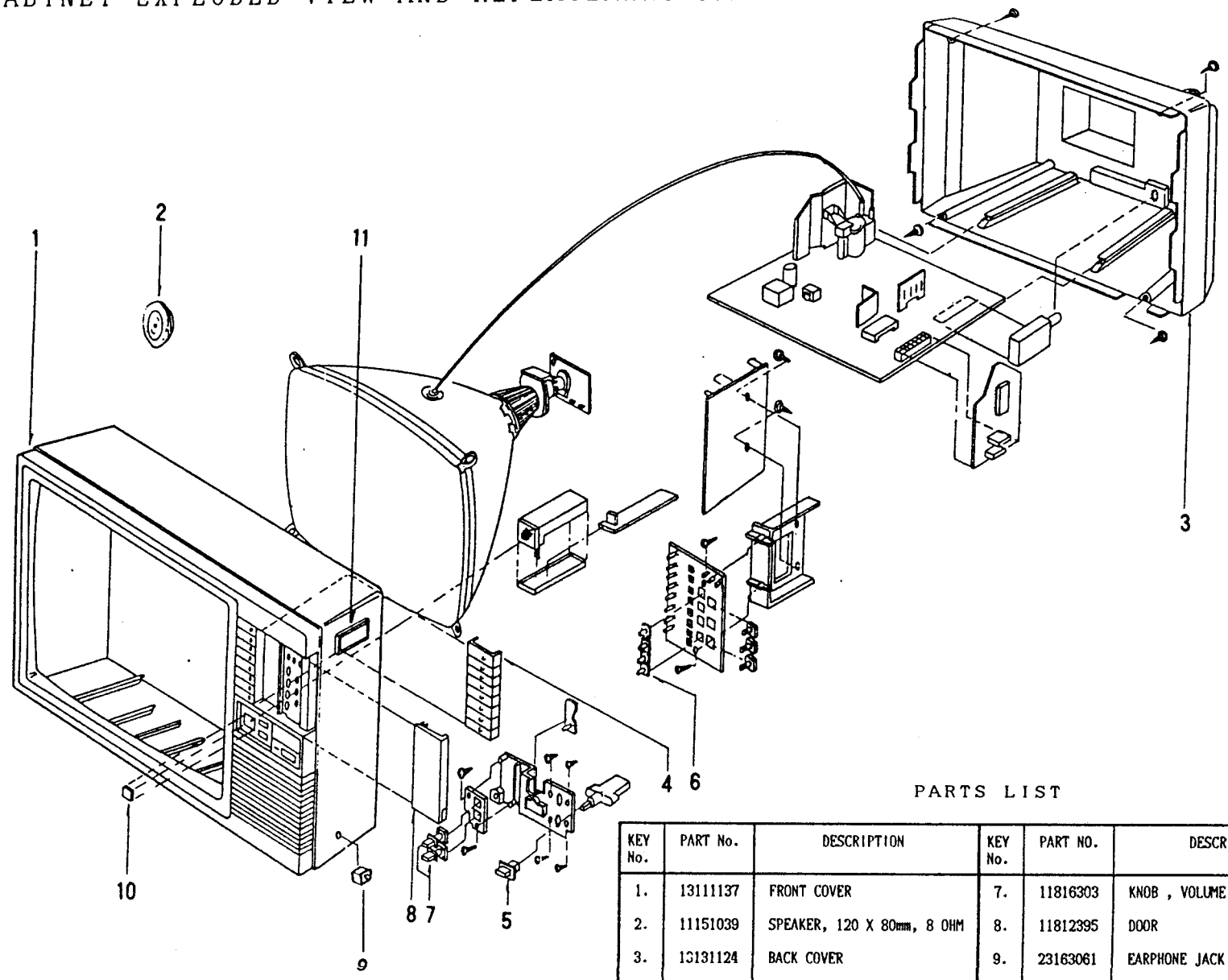


Figure 8 STAIR WAVE FORM

CABINET EXPLODED VIEW AND REPLACEMENT PARTS LIST



PARTS LIST

KEY No.	PART No.	DESCRIPTION	KEY No.	PART NO.	DESCRIPTION
1.	13111137	FRONT COVER	7.	11816303	KNOB , VOLUME UP/DOWN
2.	11151039	SPEAKER, 120 X 80mm, 8 OHM	8.	11812395	DOOR
3.	13131124	BACK COVER	9.	23163061	EARPHONE JACK
4.	11816199A	KNOB, CHANNEL BUTTONS	10.	11817021A	FILTER GLASS (REMOCON)
5.	11816266	KNOB, SW. (POWER)	11.	11815014	HANDLE
6.	11816192	KNOB, TACT SWITCH			

ELECTRICAL PARTS LIST

TOLERANCE CAPACITORS AND RESISTORS

C:±0.25% D:±0.5% F:±1% G:±2% J:±5% K:±10% M:±20% P:+100%,-0% Z:+80%,-20%

MAIN PW-1621

CAPACITORS

REF. NO.	PART NO.	DESCRIPTION
C101	12633102S	CHEMICAL CONDENSER, 04W 16V 1000MF
C102	12634101S	CHEMICAL CONDENSER, 04W 25V 100MF
C103	12636010S	CHEMICAL CONDENSER, 04W 50V 1MF
C104	12636229S	CHEMICAL CONDENSER, 04W 50V 2.2MF
C106	12636229S	CHEMICAL CONDENSER, 04W 50V 2.2MF
C107	12636478S	CHEMICAL CONDENSER, 04W 50V 0.47MF
C108	12436120T	CERAMIC CAPACITOR, SL 50V 12PF J
C110	12232103T	CERAMIC CAPACITOR, F 50V 0.01MF Z
C113	12232103T	CERAMIC CAPACITOR, F 50V 0.01MF Z
C114	12436180T	CERAMIC CAPACITOR, SL 50V 18PF J
C115	12436181T	CERAMIC CAPACITOR, SL 50V 180PF J
C116	12232103T	CERAMIC CAPACITOR, F 50V 0.01MF Z
C118	12602104D	PLASTIC CAPACITOR, M 50V 0.1MF K
C119	12636470S	CHEMICAL CONDENSER, 04W 50V 47MF
C120	12636010S	CHEMICAL CONDENSER, 04W 50V 1MF
C123	12232223T	CERAMIC CAPACITOR, F 50V 0.022MF Z
C124	12436101T	CERAMIC CAPACITOR, SL 50V 100PF J
C199	12692472D	PLASTIC CAPACITOR, M 50V 4700PF J
C201	12436300T	CERAMIC CAPACITOR, SL 50V 30PF J
C204	12436820T	CERAMIC CAPACITOR, SL 50V 82PF J
C301	12232103T	CERAMIC CAPACITOR, F 50V 0.01MF Z
C302	12436471T	CERAMIC CAPACITOR, SL 50V 470PF J
C303	12636101S	CHEMICAL CONDENSER, 04W 50V 100MF
C304	12635222S	CHEMICAL CONDENSER, 04W 35V 2200MF
C305	12602104D	PLASTIC CAPACITOR, M 50V 0.1MF K
C306	12636159S	CHEMICAL CONDENSER, 04W 50V 1.5MF
C307	12212272T	CERAMIC CAPACITOR, B 50V 2700PF K
C308	12634222S	CHEMICAL CONDENSER, 04W 25V 2200MF
C401	12602334D	PLASTIC CAPACITOR, M 50V 0.33MF K
J2	12602334D	PLASTIC CAPACITOR, M 50V 0.33MF K
C403	12436151T	CERAMIC CAPACITOR, SL 50V 150PF J
C404	12636229S	CHEMICAL CONDENSER, 04W 50V 2.2MF
C405	12636220S	CHEMICAL CONDENSER, 04W 50V 22MF
C406	12602104D	PLASTIC CAPACITOR, M 50V 0.1MF K
C407	12636100S	CHEMICAL CONDENSER, 04W 50V 10MF
C409	12633221S	CHEMICAL CONDENSER, 04W 16V 220MF
C410	12602104D	PLASTIC CAPACITOR, M 50V 0.1MF K
C411	12095042	POLYSTRENE CAPACITOR, S 50V 2700PFG
C412	12634101S	CHEMICAL CONDENSER, 04W 25V 100MF
C413	12602104D	PLASTIC CAPACITOR, M 50V 0.1MF K
C414	12692682D	PLASTIC CAPACITOR, M 50V 6800PF J
C441	12210271A	CERAMIC CAPACITOR, B 1KV 270PF M
C442	12644220S	CHEMICAL CONDENSER, 04W 250V 22MF
C443	12095041B	PLASTIC CAPACITOR, T 250V 0.68MF J
C444	12211471A	CERAMIC CAPACITOR, B 2KV 470PF K
C445	12636220S	CHEMICAL CONDENSER, 04W 50V 22MF
C451	12210271A	CERAMIC CAPACITOR, B 1KV 270PF M
C452	12634221S	CHEMICAL CONDENSER, 04W 25V 220MF
C453	12602334D	PLASTIC CAPACITOR, M 50V 0.33MF K
C454	12635222S	CHEMICAL CONDENSER, 04W 35V 2200MF
C455	12210271A	CERAMIC CAPACITOR, B 1KV 270PF M
C456	12212102T	CERAMIC CAPACITOR, B 50V 1000PF K
C601	12636100S	CHEMICAL CONDENSER, 04W 50V 10MF
C602	12634470S	CHEMICAL CONDENSER, 04W 25V 47MF
C603	12602334D	PLASTIC CAPACITOR, M 50V 0.33MF K
C604	12602223D	PLASTIC CAPACITOR, M 50V 0.022MF K
C605	12436181T	CERAMIC CAPACITOR, SL 50V 180PF J
C606	12602473D	PLASTIC CAPACITOR, M 50V 0.047MF K
C607	12636478S	CHEMICAL CONDENSER, 04W 50V 0.47MF
C611	12212222T	CERAMIC CAPACITOR, B 50V 2200PF K
C612	12636479S	CHEMICAL CONDENSER, 04W 50V 4.7MF
C613	12636100S	CHEMICAL CONDENSER, 04W 50V 10MF
C614	12635471S	CHEMICAL CONDENSER, 04W 35V 470MF
C615	12602104D	PLASTIC CAPACITOR, M 50V 0.1MF K
C616	12602224D	PLASTIC CAPACITOR, M 50V 0.22MF K
C617	12635222S	CHEMICAL CONDENSER, 04W 35V 2200MF
C618	12602473D	PLASTIC CAPACITOR, M 50V 0.047MF K
C619	12232104A	CERAMIC CAPACITOR, F 50V 0.1MF Z
C620	12232104A	CERAMIC CAPACITOR, F 50V 0.1MF Z
C801	12210222A	CERAMIC CAPACITOR, B 1KV 2200PF M
C802	12210222A	CERAMIC CAPACITOR, B 1KV 2200PF M
C803	12210222A	CERAMIC CAPACITOR, B 1KV 2200PF M
C804	12210222A	CERAMIC CAPACITOR, B 1KV 2200PF M
C805	12095049D	P/CAPACITOR, T AC250V 0.33MF J VDE
C805 OR	12095088B	P/CAPACITOR, T AC250V 0.33MF K VDE
C806	12095038D	P/CAPACITOR, T AC250V 0.1MF J VDE
C807	12087008	CHEMICAL CONDENSER, 400V 220MF 2PIN
C808	12215102A	CERAMIC CAPACITOR, B 1KV 1000PF K
C809	12099100E	PAPER CAPACITOR, 100V 10MF
C810	12095518B	PLASTIC CAPACITOR, T 1.5KV 8200PF J
C811	12094047	CERAMIC CAPACITOR, B 4KV 4700PF M
C813	12210271A	CERAMIC CAPACITOR, B 1KV 270PF M
C814	12602332D	PLASTIC CAPACITOR, M 50V 3300PF K
C816	12602334D	PLASTIC CAPACITOR, M 50V 0.33MF K
C817	12095043	POLYSTRENE CAPACITOR, S 50V 4700PFF
C818	12602473D	PLASTIC CAPACITOR, M 50V 0.047MF K
C819	12636470S	CHEMICAL CONDENSER, 04W 50V 47MF
C820	12636010S	CHEMICAL CONDENSER, 04W 50V 1MF
C821	12232103T	CERAMIC CAPACITOR, F 50V 0.01MF Z
C822	12602472D	PLASTIC CAPACITOR, M 50V 4700PF K
C824	12211471A	CERAMIC CAPACITOR, B 2KV 470PF K

RESISTORS

R101	12360473T	CARBON RESISTOR, SB 1/8W 47K OHM J
R102	12360125T	CARBON RESISTOR, SB 1/8W 1.2M OHM J
R103	12360473T	CARBON RESISTOR, SB 1/8W 47K OHM J
R104	12360473T	CARBON RESISTOR, SB 1/8W 47K OHM J
R105	12360109T	CARBON RESISTOR, SB 1/8W 1 OHM J
R106	12360133T	CARBON RESISTOR, SB 1/8W 13K OHM J
R107	12360470T	CARBON RESISTOR, SB 1/8W 47 OHM J

REF. NO.	PART NO.	DESCRIPTION
R108	12360104T	CARBON RESISTOR, SB 1/8W 100K OHM J
R109	12061048	CARBON-VR, 08B 1/10W 5K OHM FB
R110	12360223T	CARBON RESISTOR, SB 1/8W 22K OHM J
R111	12360682T	CARBON RESISTOR, SB 1/8W 6.8K OHM J
R112	12360339T	CARBON RESISTOR, SB 1/8W 3.3 OHM J
R113	12964682F	OXIDE RESISTOR, B 2W 6.8K OHM J
R115	12360102T	CARBON RESISTOR, SB 1/8W 1K OHM J
R118	12964822F	OXIDE RESISTOR, B 2W 8.2K OHM J
R201	12360331T	CARBON RESISTOR, SB 1/8W 330 OHM J
R202	12360470T	CARBON RESISTOR, SB 1/8W 47 OHM J
R203	12360330T	CARBON RESISTOR, SB 1/8W 33 OHM J
R204	12360152T	CARBON RESISTOR, SB 1/8W 1.5K OHM J
R205	12360272T	CARBON RESISTOR, SB 1/8W 2.7K OHM J
R206	12360301T	CARBON RESISTOR, SB 1/8W 300 OHM J
R207	12360479T	CARBON RESISTOR, SB 1/8W 4.7 OHM J
R211	12360104T	CARBON RESISTOR, SB 1/8W 100K OHM J
R212	12360682T	CARBON RESISTOR, SB 1/8W 6.8K OHM J
R213	12360202T	CARBON RESISTOR, SB 1/8W 2K OHM J
R221	12360683T	CARBON RESISTOR, SB 1/8W 68K OHM J
R222	12360363T	CARBON RESISTOR, SB 1/8W 36K OHM J
R223	12360203T	CARBON RESISTOR, SB 1/8W 20K OHM J
R225	12360332T	CARBON RESISTOR, SB 1/8W 3.3K OHM J
R226	12360681T	CARBON RESISTOR, SB 1/8W 680 OHM J
R228	12360682T	CARBON RESISTOR, SB 1/8W 6.8K OHM J
R311	12360153T	CARBON RESISTOR, SB 1/8W 15K OHM J
R312	12360471T	CARBON RESISTOR, SB 1/8W 470 OHM J
R313	12360163T	CARBON RESISTOR, SB 1/8W 16K OHM J
R314	12360204T	CARBON RESISTOR, SB 1/8W 200K OHM J
R315	12360109T	CARBON RESISTOR, SB 1/8W 1 OHM J
R316	12360391T	CARBON RESISTOR, SB 1/8W 390 OHM J
317	12360471T	CARBON RESISTOR, SB 1/8W 470 OHM J
318	12360102T	CARBON RESISTOR, SB 1/8W 1K OHM J
320	12360153T	CARBON RESISTOR, SB 1/8W 15K OHM J
321	12360229T	CARBON RESISTOR, SB 1/8W 2.2 OHM J
322	12360123T	CARBON RESISTOR, SB 1/8W 12K OHM J
323	12360220T	CARBON RESISTOR, SB 1/8W 22 OHM J
R401	12360224T	CARBON RESISTOR, SB 1/8W 220K OHM J
R402	12061053	CARBON-VR, 08B 1/10W 200K OHM
R403	12360224T	CARBON RESISTOR, SB 1/8W 220K OHM J
R404	12360102T	CARBON RESISTOR, SB 1/8W 1K OHM J
R405	12360562T	CARBON RESISTOR, SB 1/8W 5.6K OHM J
R406	12360270T	CARBON RESISTOR, SB 1/8W 27 OHM J
R407	12360821T	CARBON RESISTOR, SB 1/8W 820 OHM J
R408	12360562T	CARBON RESISTOR, SB 1/8W 5.6K OHM J
R409	12360123T	CARBON RESISTOR, SB 1/8W 12K OHM J
R410	12360100T	CARBON RESISTOR, SB 1/8W 10 OHM J
R411	12360153T	CARBON RESISTOR, SB 1/8W 15K OHM J
R414	12360393T	CARBON RESISTOR, SB 1/8W 39K OHM J
R416	12061049	CARBON-VR, 08B 1/10W 10K OHM
R417	12360303T	CARBON RESISTOR, SB 1/8W 30K OHM J
R418	12360152T	CARBON RESISTOR, SB 1/8W 1.5K OHM J
R419	12360221T	CARBON RESISTOR, SB 1/8W 220 OHM J
R420	12360122T	CARBON RESISTOR, SB 1/8W 1.2K OHM J
R421	12360121T	CARBON RESISTOR, SB 1/8W 120 OHM J

REF. NO.	PART NO.	DESCRIPTION
R441	12000025	FUSE RESISTOR, 1/2W 0.22 OHM K
R442	12360471T	CARBON RESISTOR, SB 1/8W 470 OHM J
R443	12964102F	OXIDE RESISTOR, B 2W 1K OHM J
R444	12963103F	OXIDE RESISTOR, B 1W 10K OHM J
R445	12360104T	CARBON RESISTOR, SB 1/8W 100K OHM J
R446	12360184T	CARBON RESISTOR, SB 1/8W 180K OHM J
R451	12000025	FUSE RESISTOR, 1/2W 0.22 OHM K
R452	12000025	FUSE RESISTOR, 1/2W 0.22 OHM K
R454	12360204T	CARBON RESISTOR, SB 1/8W 200K OHM J
R509	12360683T	CARBON RESISTOR, SB 1/8W 68K OHM J
R510	12360473T	CARBON RESISTOR, SB 1/8W 47K OHM J
R511	12360153T	CARBON RESISTOR, SB 1/8W 15K OHM J
R601	12360362T	CARBON RESISTOR, SB 1/8W 3.6K OHM J
R602	12360562T	CARBON RESISTOR, SB 1/8W 5.6K OHM J
R603	12360100T	CARBON RESISTOR, SB 1/8W 10 OHM J
R611	12360822T	CARBON RESISTOR, SB 1/8W 8.2K OHM J
R612	12360223T	CARBON RESISTOR, SB 1/8W 22K OHM J
R613	12360104T	CARBON RESISTOR, SB 1/8W 100K OHM
R614	12360104T	CARBON RESISTOR, SB 1/8W 100K OHM J
R616	12360822T	CARBON RESISTOR, SB 1/8W 8.2K OHM J
R617	12360753T	CARBON RESISTOR, SB 1/8W 75K OHM J
R618	12360229T	CARBON RESISTOR, SB 1/8W 2.2 OHM J
R620	12533120L	FUSE RESISTOR, RN A 2W 12 OHM J
R621	12360221T	CARBON RESISTOR, SB 1/8W 220 OHM J
R622	12360682T	CARBON RESISTOR, SB 1/8W 6.8K OHM J
R662	24946470T	SOLID RESISTOR, GE 1/2W 47 OHM K
R801Z	13241015	RESISTOR, ASS'Y R801 (5W 2.7 OHM)
R802	12000006	P/THEMISTOR, PTH451C-01B6 360M 270
R804	24946395T	SOLID RESISTOR, GE 1/2W 3.9M OHM K
R807	12964102F	OXIDE RESISTOR, B 2W 1K OHM J
R808Z	13241016	RESISTOR, ASS'Y R808 (5W 2.7 OHM)
R809	12360470T	CARBON RESISTOR, SB 1/8W 47 OHM J
R810	12360565T	CARBON RESISTOR, SB 1/8W 5.6M OHM J
R811	12360471T	CARBON RESISTOR, SB 1/8W 470 OHM J
R812	12531470	FUSE RESISTOR, RN A 1/2W 47 OHM J
R813	12360184T	CARBON RESISTOR, SB 1/8W 180K OHM
R814	12360274T	CARBON RESISTOR, SB 1/8W 270K OHM J
R815Z	13241017	RESISTOR, ASS'Y R815 (5W 20K)
R816	12360362T	CARBON RESISTOR, SB 1/8W 3.6K OHM J
R817	12360562T	CARBON RESISTOR, SB 1/8W 5.6K OHM J
R818	12061047	CARBON-VR, 08B 1/10W 2K OHM
R819	12360473T	CARBON RESISTOR, SB 1/8W 47K OHM J
R820	12360123T	CARBON RESISTOR, SB 1/8W 12K OHM J
R821	12360823T	CARBON RESISTOR, SB 1/8W 82K OHM J
R822	12360621T	CARBON RESISTOR, SB 1/8W 620 OHM J
R823	12360153T	CARBON RESISTOR, SB 1/8W 15K OHM J
R824	12360104T	CARBON RESISTOR, SB 1/8W 100K OHM J
R825	12360272T	CARBON RESISTOR, SB 1/8W 2.7K OHM J
R826	12360103T	CARBON RESISTOR, SB 1/8W 10K OHM J
R827	12360682T	CARBON RESISTOR, SB 1/8W 6.8K OHM J
R828	12360153T	CARBON RESISTOR, SB 1/8W 15K OHM J
R830	12360203T	CARBON RESISTOR, SB 1/8W 20K OHM J
R831	12360512T	CARBON RESISTOR, SB 1/8W 5.1K OHM J

REF. NO.	PART NO.	DESCRIPTION
R832	12360272T	CARBON RESISTOR, SB 1/8W 2.7K OHM J
R833	12901303T	METAL RESISTOR, K 1/4W 30K OHM F
R834	12901822T	METAL RESISTOR, K 1/4W 8.2K OHM F
R835	12360333T	CARBON RESISTOR, SB 1/8W 33K OHM J
R836	12982479T	METAL RESISTOR, B 1/2W 4.7 OHM J

SEMICONDUCTORS

D101	OR	11119016	IC, POWER REG UPC574J
D101		11119210	IC, POWER REGU KA33V
D201	OR	11115017	SILICON DIODE, KDS1555
D201		11115024	SILICON DIODE, 1N4148
D301		11115001	SILICON DIODE, 1N4002
D441		11115122	DIODE, BYW13
D442	OR	11115034	ZENER DIODE, 05Z3.9Y
D442		11115141	ZENER DIODE, BZX55B3V9
D451		11115119	DIODE, BYW34
D452		11115119	DIODE, BYW34
D611	OR	11115017	SILICON DIODE, KDS1555
D611		11115024	SILICON DIODE, 1N4148
D612		11115001	SILICON DIODE, 1N4002
D613		11115001	SILICON DIODE, 1N4002
D614	OR	11115017	SILICON DIODE, KDS1555
D614		11115024	SILICON DIODE, 1N4148
D616	OR	11115017	SILICON DIODE, KDS1555
D616		11115024	SILICON DIODE, 1N4148
D801		11115112	DIODE, BYW54
D802		11115112	DIODE, BYW54
D803		11115112	DIODE, BYW54
D804		11115112	DIODE, BYW54
D805Z		13244003	DIODE, ASS'Y BYW76 D805
D807Z		13244004	DIODE, ASS'Y BYW76 D807
D808		11115001	SILICON DIODE, 1N4002
D809		11115001	SILICON DIODE, 1N4002
D810		11115001	SILICON DIODE, 1N4002
D811	OR	11115089	ZENER DIODE, RD6.2EB3
D811		23115665	ZD VZ=6.00-6.35V P=0.5W
D812		11115075	DIODE, 1N4001
D814	OR	11115017	SILICON DIODE, KDS1555
D814		11115024	SILICON DIODE, 1N4148
D815		11115121	DIODE, BYW76
D817		11115001	SILICON DIODE, 1N4002
D818		11115001	SILICON DIODE, 1N4002
D819		11115001	SILICON DIODE, 1N4002
D820		11115001	SILICON DIODE, 1N4002
D821		11115001	SILICON DIODE, 1N4002
Q101		11119125	IC, TDA4437
Q201		11114056T	TRANSISTOR, KTC1815-Y
Q301Z		13021014	HEAT SINK, ASS'Y TDA3653 Q301
Q401		11119096	IC, TDA2579
Q403Z		13021018	HEAT SINK, ASS'Y BU508A Q403 20ERC
Q450Z		13021016	HEAT SINK, ASS'Y IC 7812 Q450
Q601		11119099	IC, TBA120T

REF. NO.	PART NO.	DESCRIPTION
Q602Z	13021017	HEAT SINK, ASS'Y TDA2030V/2006 Q602
Q802	11114089T	TRANSISTOR, KTC2482
Q803	11114071T	TRANSISTOR, KTA1015-GR FA
Q804	11114056T	TRANSISTOR, KTC1815-Y
Q805	11114056T	TRANSISTOR, KTC1815-Y
Q806	11114056T	TRANSISTOR, KTC1815-Y
Q807	11114056T	TRANSISTOR, KTC1815-Y
Q809	11114049T	TRANSISTOR, KTA1015-Y
Q810	11114244	PHOTO COUPLER, CNY17-3Z

COILS AND TRANSFORMERS

L101		11283220T	PEAKING COIL, KRF4220J
L102		11284689T	PEAKING COIL, KRF4689K
L104		11284561T	PEAKING COIL, KRF4561K
L151		11262072	COIL, PIF KRF0304A
L152		11262053	COIL, PIF KRF0304
L153		11284569T	PEAKING COIL, KRF4569K
L154		11262055	COIL, PIF KRF0412
L155		11262056	COIL, PIF KRF0384
L201		11284150T	PEAKING COIL, KRF4150K
L402		11222020	COIL, LINEARITY KLN2045
L403		11283100T	PEAKING COIL, KRF4100J
L801		11211010A	COIL, LINE FILTER ASS'Y AT4043/55
L801A	OR	11211008	COIL, LINE FILTER AT4043/55
L801		11211010B	COIL, LINE FILTER ASS'Y AT4043/55
L801A		11211008	COIL, LINE FILTER AT4043/55
T461Z		13243011	FBT, ASS'Y AT2077/80 T461 20ERC
T801		11213119	TRANS, CONVERTOR KPW1901D
T802		11224009	TRANS, HORIZONTAL DRIVE KLN2001
T803		11213138	TRANS, REMOCON KPW2431A

MISCELLANEOUS

F801	11144118	FUSE, 1.6A 250V T 5.2*20MM T
F801A	23165102	HOLDER, FUSE
H001	11121099	U/VHF TUNER, 1800KKC
H001A	11847171	HOLDER, PCB
SR801	11146001	RELAY, VS-12M UL/CSA TV-5
P101	11164030	PLUG, 8P(MINI) 5045-08A
P104	11164026	PLUG, 4P(MINI) 5045-04A
P111	23162043	TERMINAL, SQUARE PIN
P401	11164178	PLUG, 6P
P501	11164117	PLUG, 8P 5273-08A
P502	11164101	PLUG, 3P 5273-03A
P601	11164025	PLUG, 3P(MINI) 5045-03A
P651	11164024	PLUG, 2P(MINI) 5045-02A
P801	11164034	PLUG, 2P(WITH STOPPER) 5289-2A
P803	11164025	PLUG, 3P(MINI) 5045-03A
P806	11164024	PLUG, 2P(MINI) 5045-02A
P901	11164176	PLUG, 2P
P902	11164027	PLUG, 5P(MINI) 5045-05A
Z101	11107045	SAW FILTER, TSF1309
Z201	11107031	CERAMIC FILTER, TPS5.5MB

REF. NO.	PART NO.	DESCRIPTION
Z601	11107006	CERAMIC FILTER, 5.5MHZ SFE5.5MB
Z602	11107058	DISCRIMINATOR, CDA5.5MC10
U111	11892193D	PCB, MAIN PW-1621 PAL 20ERC

REMOCON PW-1615-1

CAPACITORS

C001	12636479S	CHEMICAL CONDENSER, 04W 50V 4.7MF
C002	12636339S	CHEMICAL CONDENSER, 04W 50V 3.3MF
C008	12692472D	PLASTIC CAPACITOR, M 50V 4700PF J
C009	12617001E	CHEMICAL CONDENSER, 04C 16V 10MF K
C020	12212101T	CERAMIC CAPACITOR, B 50V 100PF K
C021	12212101T	CERAMIC CAPACITOR, B 50V 100PF K
C022	12692104D	PLASTIC CAPACITOR, M 50V 0.1MF J
C023	24587228E	TA SOLID CAPACITOR, 35V 0.22MF M
C030	12634470S	CHEMICAL CONDENSER, 04W 25V 47MF
C031	12212103T	CERAMIC CAPACITOR, B 50V 0.01MF K
C082	12634331S	CHEMICAL CONDENSER, 04W 25V 330MF
C083	12632101S	CHEMICAL CONDENSER, 04W 10V 100MF
C085	12634471S	CHEMICAL CONDENSER, 04W 25V 470MF
C087	12632102S	CHEMICAL CONDENSER, 04W 10V 1000MF
C091	12692473D	PLASTIC CAPACITOR, M 50V 0.047MF J
C092	12436151T	CERAMIC CAPACITOR, SL 50V 150PF J
C093	12692223D	PLASTIC CAPACITOR, M 50V 0.022MF J
C094	12692104D	PLASTIC CAPACITOR, M 50V 0.1MF J
C095	12634100S	CHEMICAL CONDENSER, 04W 25V 10MF

RESISTORS

R001	12360562T	CARBON RESISTOR, SB 1/8W 5.6K OHM J
R002	12360273T	CARBON RESISTOR, SB 1/8W 27K OHM J
R003	12360113T	CARBON RESISTOR, SB 1/8W 11K OHM J
R005	12360681T	CARBON RESISTOR, SB 1/8W 680 OHM J
R008	12360222T	CARBON RESISTOR, SB 1/8W 2.2K OHM J
R009	12360102T	CARBON RESISTOR, SB 1/8W 1K OHM J
R010	12360221T	CARBON RESISTOR, SB 1/8W 220 OHM J
R011	12360102T	CARBON RESISTOR, SB 1/8W 1K OHM J
R020	12360363T	CARBON RESISTOR, SB 1/8W 36K OHM J
R021	12360183T	CARBON RESISTOR, SB 1/8W 18K OHM J
R023	12360912T	CARBON RESISTOR, SB 1/8W 9.1K OHM J
R024	12360392T	CARBON RESISTOR, SB 1/8W 3.9K OHM J
R025	12360332T	CARBON RESISTOR, SB 1/8W 3.3K OHM J
R026	12360472T	CARBON RESISTOR, SB 1/8W 4.7K OHM J
R027	12360682T	CARBON RESISTOR, SB 1/8W 6.8K OHM J
R032	12360823T	CARBON RESISTOR, SB 1/8W 82K OHM J
R037	12360103T	CARBON RESISTOR, SB 1/8W 10K OHM J
R038	12360103T	CARBON RESISTOR, SB 1/8W 10K OHM J
R039	12360103T	CARBON RESISTOR, SB 1/8W 10K OHM J
R047	12360103T	CARBON RESISTOR, SB 1/8W 10K OHM J
R048	12360103T	CARBON RESISTOR, SB 1/8W 10K OHM J
R050	12360153T	CARBON RESISTOR, SB 1/8W 15K OHM J
R051	12360153T	CARBON RESISTOR, SB 1/8W 15K OHM J
R052	12360822T	CARBON RESISTOR, SB 1/8W 8.2K OHM J
R053	12360822T	CARBON RESISTOR, SB 1/8W 8.2K OHM J
R054	12360822T	CARBON RESISTOR, SB 1/8W 8.2K OHM J
R060	12360563T	CARBON RESISTOR, SB 1/8W 56K OHM J
R061	12360563T	CARBON RESISTOR, SB 1/8W 56K OHM J
R062	12360222T	CARBON RESISTOR, SB 1/8W 2.2K OHM J
R063	12360222T	CARBON RESISTOR, SB 1/8W 2.2K OHM J
R064	12360562T	CARBON RESISTOR, SB 1/8W 5.6K OHM J
R065	12360681T	CARBON RESISTOR, SB 1/8W 680 OHM J
R083	12962101T	OXIDE RESISTOR, B 1/2W 100 OHM J
R084	12962151T	OXIDE RESISTOR, B 1/2W 150 OHM J
R085	12360622T	CARBON RESISTOR, SB 1/8W 6.2K OHM J
R087	12360122T	CARBON RESISTOR, SB 1/8W 1.2K OHM J
R090	12360562T	CARBON RESISTOR, SB 1/8W 5.6K OHM J
R091	12360103T	CARBON RESISTOR, SB 1/8W 10K OHM J
R092	12360332T	CARBON RESISTOR, SB 1/8W 3.3K OHM J
R093	12360273T	CARBON RESISTOR, SB 1/8W 27K OHM J
R094	12360154T	CARBON RESISTOR, SB 1/8W 150K OHM J
R095	12061052	CARBON-VR, 08B 1/10W 100K OHM
R096	12360473T	CARBON RESISTOR, SB 1/8W 47K OHM J
R097	12360473T	CARBON RESISTOR, SB 1/8W 47K OHM J

SEMICONDUCTORS

D002	OR	11115017	SILICON DIODE, KDS1555
D002		11115024	SILICON DIODE, 1N4148
D003	OR	11115017	SILICON DIODE, KDS1555
D003		11115024	SILICON DIODE, 1N4148
D088	OR	11115090	ZENER DIODE, 05Z 5.6Y
D088		11115046	ZENER DIODE, 05AZ5.6Y
Q001		11119065	IC, CHANNEL SELE. MEMO. SEAR. M490
Q002		11114071	TRANSISTOR, KTA1015-GR FA
Q004		11114077	TRANSISTOR, KTC1815-BL
Q005		11114049	TRANSISTOR, KTA1015-Y
Q007		11114049	TRANSISTOR, KTA1015-Y
Q008		11114049	TRANSISTOR, KTA1015-Y
Q009		11114049	TRANSISTOR, KTA1015-Y
Q022		11114049	TRANSISTOR, KTA1015-Y
Q023		11114049	TRANSISTOR, KTA1015-Y
Q024		11114062	TRANSISTOR, KTC2120-Y
Q083		11114035	TRANSISTOR, KTD880-Y
Q083	OR	11114238	TRANSISTOR, KTD1406-Y
Q083		11114239	TRANSISTOR, KTD1406-GR
Q090		11119146	IC, REMOCON TDA4433
Q091		11114056	TRANSISTOR, KTC1815-Y

MISCELLANEOUS

Z001	11107025	CERAMIC RESONATOR, CSB455A
P001	11164025	PLUG, 3P(MINI) 5045-03A
P003	11164024	PLUG, 2P(MINI) 5045-02A
P005	11164025	PLUG, 3P(MINI) 5045-03A
P006	11164025	PLUG, 3P(MINI) 5045-03A

REMOCON PW-1615-2

R045	12360681T	CARBON RESISTOR, SB 1/8W 680 OHM J
R046	12360681T	CARBON RESISTOR, SB 1/8W 680 OHM J

REF. NO.	PART NO.	DESCRIPTION
R254	24063958	CARBON-VR, 12B 0.15W 10K OHM
R256	24063958	CARBON-VR, 12B 0.15W 10K OHM
R560	24063958	CARBON-VR, 12B 0.15W 10K OHM
D024	11113005	DIODE, LIGHT EMITTING KLR114E
D025	11113005	DIODE, LIGHT EMITTING KLR114E
D026	11113005	DIODE, LIGHT EMITTING KLR114E
D028	11113005	DIODE, LIGHT EMITTING KLR114E
D029	11113005	DIODE, LIGHT EMITTING KLR114E
D030	11113005	DIODE, LIGHT EMITTING KLR114E
D031	11113005	DIODE, LIGHT EMITTING KLR114E
D032	11113005	DIODE, LIGHT EMITTING KLR114E
D033	11113005	DIODE, LIGHT EMITTING KLR114E
D034	11113005	DIODE, LIGHT EMITTING KLR114E
D035	11113005	DIODE, LIGHT EMITTING KLR114E
D036	11115017	SILICON DIODE, KDS1555
OR		
D036	11115024	SILICON DIODE, 1N4148
D037	11115017	SILICON DIODE, KDS1555
OR		
37	11115024	SILICON DIODE, 1N4148
D090	11115017	SILICON DIODE, KDS1555
OR		
D090	11115024	SILICON DIODE, 1N4148
D091	11115017	SILICON DIODE, KDS1555
OR		
D091	11115024	SILICON DIODE, 1N4148
SW01	11145054	SWITCH, TACT KPT1104(KNOB)
SW02	11145054	SWITCH, TACT KPT1104(KNOB)
SW03	11145054	SWITCH, TACT KPT1104(KNOB)
SW04	11145054	SWITCH, TACT KPT1104(KNOB)
SW05	11145057	SWITCH, TACT KHH10-914
SW06	11145057	SWITCH, TACT KHH10-914
SW07	11145057	SWITCH, TACT KHH10-914
SW08	11145057	SWITCH, TACT KHH10-914
SW09	11145057	SWITCH, TACT KHH10-914
SW10	11145057	SWITCH, TACT KHH10-914
SW11	11145057	SWITCH, TACT KHH10-914
SW12	11145057	SWITCH, TACT KHH10-914

REMOCON PW-1615-3

D022	11113005	DIODE, LIGHT EMITTING KLR114E

CRT PW-1617

C901	12820104B	PLASTIC CAPACITOR, T 630V 0.1MF J
C902	12220103A	CERAMIC CAPACITOR, E 1KV 0.01MF P
C903	12436121T	CERAMIC CAPACITOR, SL 50V 120PF J
C904	12436121T	CERAMIC CAPACITOR, SL 50V 120PF J
C905	12436121T	CERAMIC CAPACITOR, SL 50V 120PF J
C906	12636100S	CHEMICAL CONDENSER, 04W 50V 10MF
C908	12215102A	CERAMIC CAPACITOR, B 1KV 1000PF K
R901	12963123F	OXIDE RESISTOR, B 1W 12K OHM J
R902	12963123F	OXIDE RESISTOR, B 1W 12K OHM J
R903	12963123F	OXIDE RESISTOR, B 1W 12K OHM J
R904	12964129F	OXIDE RESISTOR, B 2W 1.2 OHM J
R905	12360152T	CARBON RESISTOR, SB 1/8W 1.5K OHM J
R906	12360152T	CARBON RESISTOR, SB 1/8W 1.5K OHM J
R907	12360152T	CARBON RESISTOR, SB 1/8W 1.5K OHM J
R908	24946105T	SOLID RESISTOR, GE 1/2W 1M OHM K
R909	12360621T	CARBON RESISTOR, SB 1/8W 620 OHM J
R910	12360621T	CARBON RESISTOR, SB 1/8W 620 OHM J
R911	12360621T	CARBON RESISTOR, SB 1/8W 620 OHM J
R912	12360472T	CARBON RESISTOR, SB 1/8W 4.7K OHM J
R913	12360391T	CARBON RESISTOR, SB 1/8W 390 OHM J
R914	24061660	CARBON-VR, 08B 0.125W 500 OHM TB
OR		
R914	12060126	METAL-VR, 08B 0.3W 500 OHM TB
R915	12360472T	CARBON RESISTOR, SB 1/8W 4.7K OHM J
R916	12360391T	CARBON RESISTOR, SB 1/8W 390 OHM J
R917	24061660	CARBON-VR, 08B 0.125W 500 OHM TB
OR		
R917	12060126	METAL-VR, 08B 0.3W 500 OHM TB
R918	12360472T	CARBON RESISTOR, SB 1/8W 4.7K OHM J
R919	12360391T	CARBON RESISTOR, SB 1/8W 390 OHM J
R920	24061660	CARBON-VR, 08B 0.125W 500 OHM TB
OR		
R920	12060126	METAL-VR, 08B 0.3W 500 OHM TB
R921	12061039	CARBON-VR, 08B 1/10W 20K OHM TB
R922	12360113T	CARBON RESISTOR, SB 1/8W 11K OHM J
R923	12061039	CARBON-VR, 08B 1/10W 20K OHM TB
Q901	11114089	TRANSISTOR, KTC2482
Q902	11114089	TRANSISTOR, KTC2482
Q903	11114089	TRANSISTOR, KTC2482

MISCELLANEOUS

U113	11892171B	PCB, CRT PW-1617 BRC/ERC
V901A	11116023	SOCKET, CRT 10P S-B0895
Z901	11140004	SPARK GAP, 1.0KV-2.0KV

PRE-AMP PW-1226

CB01	12692473D	PLASTIC CAPACITOR, M 50V 0.047MF J
CB02	12636100S	CHEMICAL CONDENSER, 04W 50V 10MF
CB04	12692223D	PLASTIC CAPACITOR, M 50V 0.022MF J
CB05	12692104D	PLASTIC CAPACITOR, M 50V 0.1MF J
RB01	12360272T	CARBON RESISTOR, SB 1/8W 2.7K OHM J
RB02	12360334T	CARBON RESISTOR, SB 1/8W 330K OHM J
RB03	12360332T	CARBON RESISTOR, SB 1/8W 3.3K OHM J
RB04	12360123T	CARBON RESISTOR, SB 1/8W 12K OHM J
RB05	12360102T	CARBON RESISTOR, SB 1/8W 1K OHM J
RB06	12360473T	CARBON RESISTOR, SB 1/8W 47K OHM J
RB07	12360105T	CARBON RESISTOR, SB 1/8W 1M OHM J
RB08	12360393T	CARBON RESISTOR, SB 1/8W 39K OHM J
RB09	12360104T	CARBON RESISTOR, SB 1/8W 100K OHM J
RB10	12360332T	CARBON RESISTOR, SB 1/8W 3.3K OHM J
DB01	11113006	DIODE, LIGHT EMITTING PH302
DB02	11115017	SILICON DIODE, KDS1555
OR		
DB02	11115024	SILICON DIODE, 1N4148
QB01	11119134	IC, RMT RECEIVE TDA2320
QB02	11114077	TRANSISTOR, KTC1815-BL
U114	11892080	PCB, PRE-AMP PW-1226

REF. NO.	PART NO.	DESCRIPTION
CHROMA PW-1609		
SW13	11145054	SWITCH, TACT KPT1104(KNOB)
SW14	11145054	SWITCH, TACT KPT1104(KNOB)
U120	11892200	PCB, VOLUME PW-1624
VOLUME PW-1624		
C501	12232103T	CERAMIC CAPACITOR, F 50V 0.01MF Z
C502	12094039	VARIABLE CAPACITOR, TZ03R300E
C503	12636229S	CHEMICAL CONDENSER, 04W 50V 2.2MF
C505	12692104D	PLASTIC CAPACITOR, M 50V 0.1MF J
C506	12232103T	CERAMIC CAPACITOR, F 50V 0.01MF Z
C507	12636101S	CHEMICAL CONDENSER, 04W 50V 100MF
C508	12692104D	PLASTIC CAPACITOR, M 50V 0.1MF J
C509	12436390T	CERAMIC CAPACITOR, SL 50V 39PF J
C510	12602334D	PLASTIC CAPACITOR, M 50V 0.33MF K
C511	12602334D	PLASTIC CAPACITOR, M 50V 0.33MF K
C512	12636229S	CHEMICAL CONDENSER, 04W 50V 2.2MF
C513	12602104D	PLASTIC CAPACITOR, M 50V 0.1MF K
C514	12602104D	PLASTIC CAPACITOR, M 50V 0.1MF K
C515	12602104D	PLASTIC CAPACITOR, M 50V 0.1MF K
C516	12692223D	PLASTIC CAPACITOR, M 50V 0.022MF J
C517	12232104A	CERAMIC CAPACITOR, F 50V 0.1MF Z
C521	12636010S	CHEMICAL CONDENSER, 04W 50V 1MF
C522	12636100S	CHEMICAL CONDENSER, 04W 50V 10MF
C523	12636010S	CHEMICAL CONDENSER, 04W 50V 1MF
R501	12360391T	CARBON RESISTOR, SB 1/8W 390 OHM J
R502	12360122T	CARBON RESISTOR, SB 1/8W 1.2K OHM J
R504	12360471T	CARBON RESISTOR, SB 1/8W 470 OHM J
R505	12360750T	CARBON RESISTOR, SB 1/8W 75 OHM J
R507	12360102T	CARBON RESISTOR, SB 1/8W 1K OHM J
R508	12360102T	CARBON RESISTOR, SB 1/8W 1K OHM J
D501	11115017	SILICON DIODE, KDS1555
OR		
D501	11115024	SILICON DIODE, 1N4148
Q501	11119206	IC, CHROMA TDA3560
OR		
Q501	11119101	IC, U8060B
L501	11283390H	PEAKING COIL, KRF4390J
L502	11250005	COIL, DELAY LINE 1H SDL-145
L502 OR	11250002	COIL, DELAY LINE IH EFD-EN645
L502	11250011	COIL, DELAY LINE 1H SD-11 P1D-A
L503	11262057	COIL, CHROMA KRF0416
P503	11164026	PLUG, 4P(MINI) 5045-04A
U122	11892132E	PCB, CHROMA PW-1609
X501	11153004	CRYSTAL, 8.86MHZ
X502	11250007	COIL, DELAY LINE (390NS)
X502 OR	11250017	COIL, DELAY LINE D0183
COMPONENTS NOT MOUNTED ON P.C. BOARD		
P881	11176053	CORD AC, 250V GP VDE
S801	11145059	SWITCH, MAIN VDE

REF. NO.	PART NO.	DESCRIPTION
L881	11103014	FERRITE CORE, OR22.1*11-13.7H
P661	23163061	EARPHONE JACK
P661 OR	11163003	EARPHONE JACK
P661	11163001	EARPHONE JACK
W661	11151039	SPEAKER, 120*80MM 8 OHM SPK2192
L901A	11200009A	COIL, DEGAUSSING KSB2137A VDE
V901	11112097	CTV CRT, SAM SUNG 5109B22
Y101	11959807A	OWNER'S MANUAL, 20ERC60SE
Y102	11959909	CARD, WARRANTY 20ERC60SE
TRANSMITTER PW-1227		
CE01	12632221S	CHEMICAL CONDENSER, 04W 10V 220MF
CE02	12436101T	CERAMIC CAPACITOR, SL 50V 100PF J
CE03	12436101T	CERAMIC CAPACITOR, SL 50V 100PF J
RE01	12360330T	CARBON RESISTOR, SB 1/8W 33 OHM J
RE02	12360103T	CARBON RESISTOR, SB 1/8W 10K OHM J
RE03	12360279T	CARBON RESISTOR, SB 1/8W 2.7 OHM J
RE04	12982228T	METAL RESISTOR, B 1/2W 0.22 OHM J
RE05	12982228T	METAL RESISTOR, B 1/2W 0.22 OHM J
DE01	11113030	LED, EL-1L1
DE02	11113030	LED, EL-1L1
QE01	11119066	IC, REMOCON TRANSMITTER M708
QE02	11114056	TRANSISTOR, KTC1815-Y
QE03	23114735	TRANSISTOR, 2SA1020-Y
OR		
QE03	11114049	TRANSISTOR, KTA1015-Y
U125	11892081	PCB, TRANSMITTER PW-1227
ZE01	11107025	CERAMIC RESONATOR, CSB455A

SCHEMATIC DIAGRAM

WARNING: BEFORE SERVICING THIS CHASSIS READ, THE "X-RAY RADIATION PRECAUTOION " "SAFETY PRECAUTION " AND "PRODUCT SAFETY NOTICE " ON PAGE 2 OF THIS MANUAL.

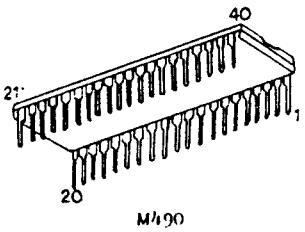
CAUTION: The parts are indentified by a ⚠ in the schematic diagram and the parts list designate component which have special characteristics important for safety and should be replaced only with types identical to those in the original circuit or specified in the parts list. Before replacing any of these components, read carefully the PRODUCT SAFETY NOTICE on page 2 . Do not degrade the safety of the receiver through improper servicing.

NOTE:

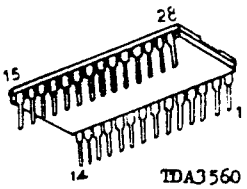
1. Resistance is shown in ohm, K = 1,000 . M = 1,000,000 .
2. Unless otherwise noted in schematic,all capacitor values less than 1 are expressed in F, and the more than 1 in pF.
3. Unless otherwise noted in schematic,all inductor values more than 1 are expressed in mH, and the values less than 1 in H
4. Voltage read with "VTVM" (input impedance: 21 Meg ohm/all range) from point indicated to chassis ground, using a color bar signal with all controls at normal, line voltage 220Volts
5. Waveforms in chrominance circuit are taken receiving a color bar signal with enough sensitivity .
6. Waveforms in other circuit are taken using an air signal under normal receiving conditions .
7. Voltage readings shown are nominal valuse and may vary ±20% except H.V .

TERMINAL VIEWS OF ICS AND TRANSISTORS

ICS



M490



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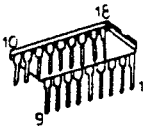
U8060B



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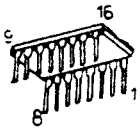

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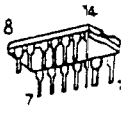
N2001A



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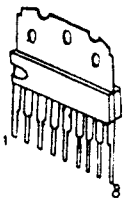
LS776CB

CNY75B



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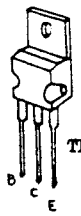

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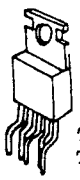
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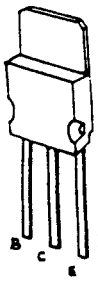
TDA2030V

TRANSISTORS



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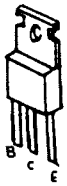


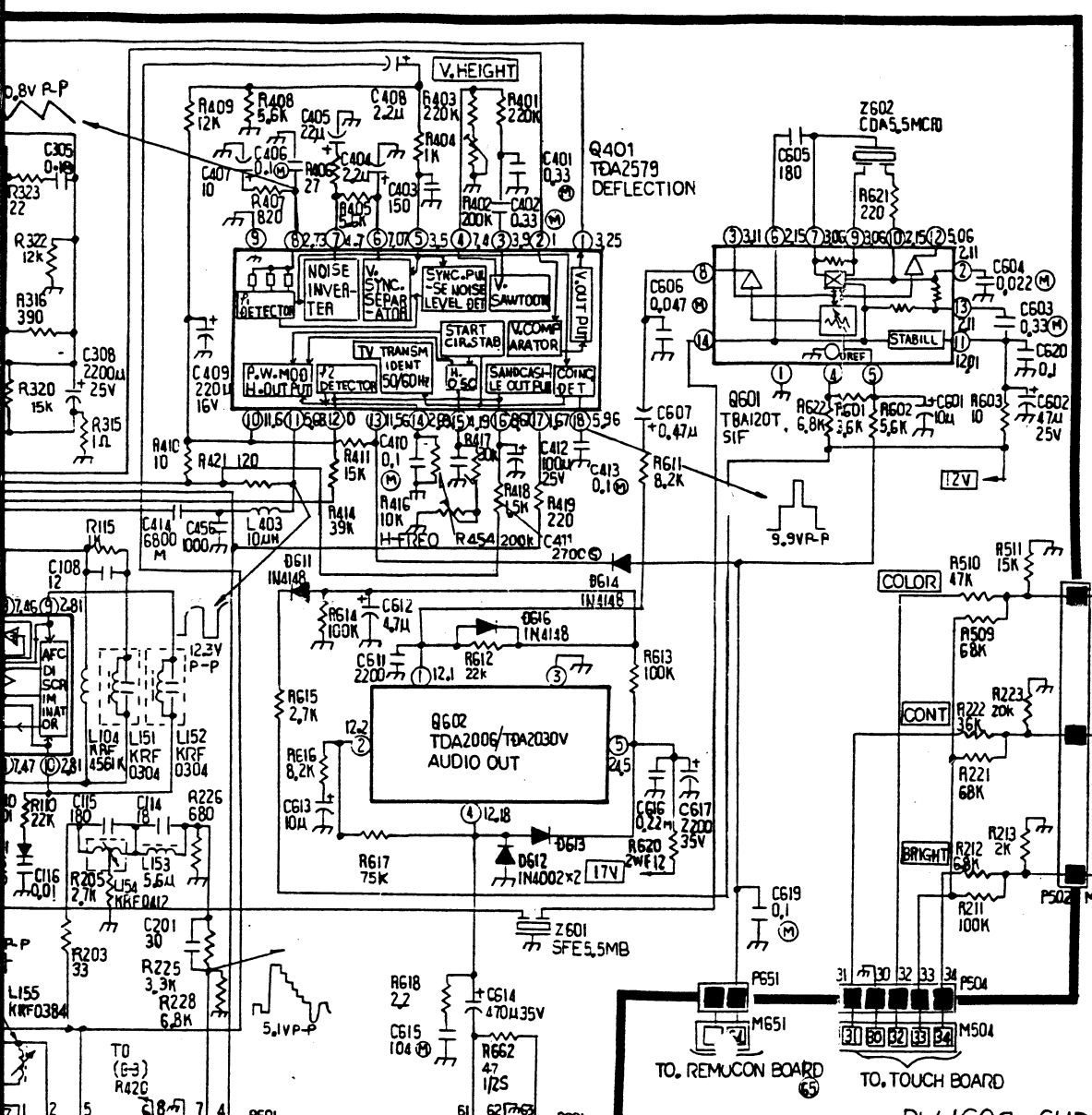
KTA880-Y

KTC2482
KTC2229
KTC2230

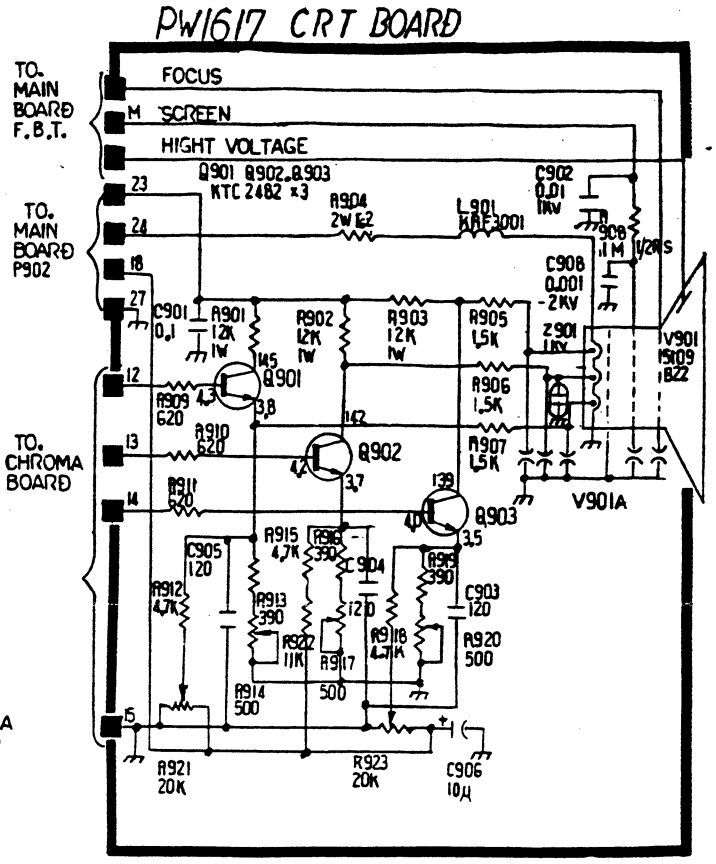
KTC1815/Y
KTA1015-Y/GR FA
KTC2120Y
KTC200Y

PW-1621 MAIN BOARD

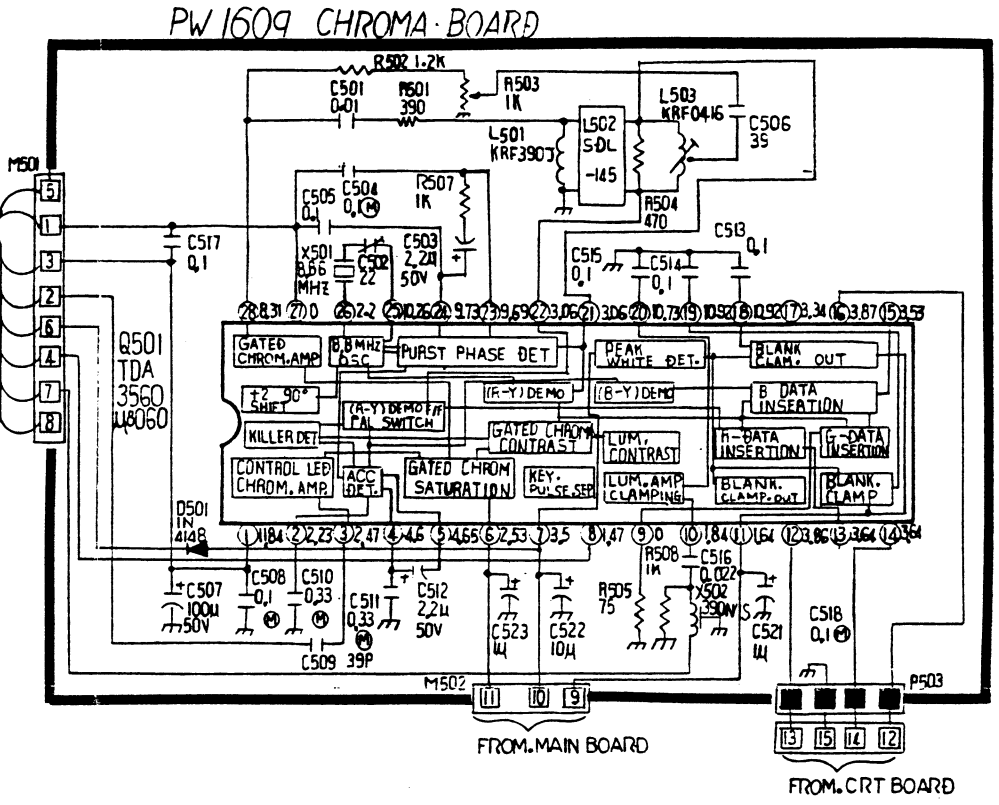
P881 AC250V
S801 SWITCH
P801
L901 DEGAUSSING
FROM. CRT BOARD
HIGH VOLTAGE
FOCUS
SCREEN
FROM. CRT BOARD
P902
H-DY
V-DY
M401
P401
0.8V P-P
TO. CONTROL BOARD
SR01 RELAY VS12M
F801 250V 6A
C805 0.33 AC250
L801 AT4043/55
R802 PTH 451C
C806 AC250V
P901 M901
T803 KPW2431A
D817~D820 IN4002 x4
C801~C804 1KV 2200x4
D801~D804 BYW54 x4
C807 2200uF 400V
Q403 BU508 A
T461 AT2077/80
D808 IN4002
R812 1/2W 4.7 FUSE
T802 KLN 2001
D812 IN4001
D821 IN 4002
D810 IN4002
D809 IN 4002
D814 IN 4148
Q803 KTA1015Y/GR
Q809 KTA 1015-Y
Q808 KTC 1815-Y
Q805
Q806
Q807
Q804
Q804~Q807 KTC1815-Y x4
D811 6.2V
C820 1μ
C821 103
C822 4700
C817 4700
C813 270 1KV
C814 3300
L48V P-P
1.3V P-P
Q301 TDA3653 VERT OUT
THERMAL PROTECTION
OUTPUT STAGE PROTECTION
VOL AGE REG
FLYBACA GEN
DRIVER
OUTPUT STAGE
47V P-P
D301 IN4002
200V
26V
12V
17V
Q450 7812
T0 (B-6) P501
Z101 TSF1309 SAW FILTER
AGC
AGC GATING
VIDEO DET
EQUALIZER
VIDEO AMP
AMP
D101 uPC 574J or KA33V
Z201 TPS5.5MB
0.75V P-P
39mVP-P
Q201 KTC1815-Y
L155 KMF0384
TO (G-3) R420
M001 TUNER 1600KC
P104
P806
M104
TO.REMOTE CONTROL BOARD
PW-1624
VOL-UP-DOWN BOARD
FROM. AC POWER SW.
SW 06
SW 05
M003
FROM. MAIN BOARD
P805
P003
FROM. MAIN BOARD PW1615-2
TOCUH BOARD
BRIGHT
CONT
COLOR
UHF
VHF
D024~D026 KLR114E x3
D028~D035 KLR114E x8
D036~D037 IN4148 x2
SW 04
SW 01
SW 02
SW 03
Q001 M490
MAIN ON OPTION
MAIN ON/OFF
SOUND D/A
AFT2
AFT1
RMC IN
VDD
OSC OUT
OSC IN
D/U
F/T D/U
MEMORY TIMING
MEMORY SUPPLY
UHF
VHF III
VHF I
Q002 KTC1015GR
D003 KBS1555
Q090 TDA4433
Q091 KTC1815-Y
Q083 KTD880-Y KTD1406-Y-GR
Q005 KTA1015-Y
Q007 KTA1015-Y
Q008 KTA 1015-Y
Q009 KTA 1015-Y
Q023 KTA 1015-Y
Q022 KTA1015-Y
Q024 KTC2120
D002 IN4148
D022 KLR 114E
PW 1615-3
FROM. MAIN BOARD
P001
M001
PW1615-1 REMOTE CONTROL BOARD
PW1227 TRA
PW 1226 PR

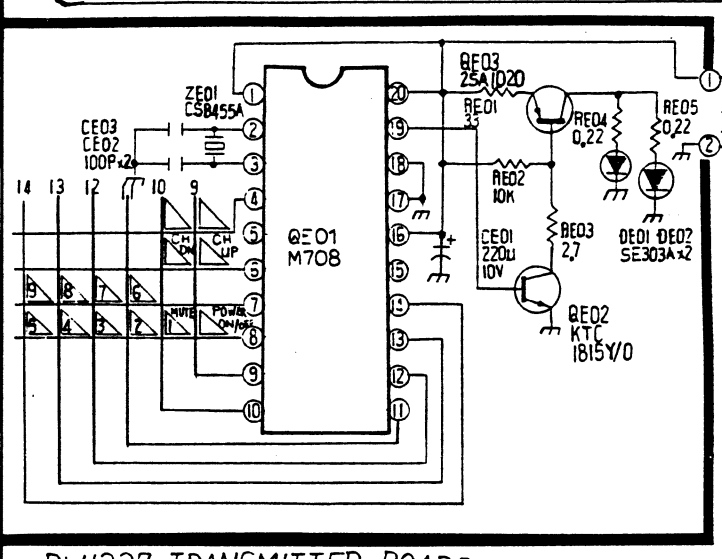


PW1617 CRT BOARD

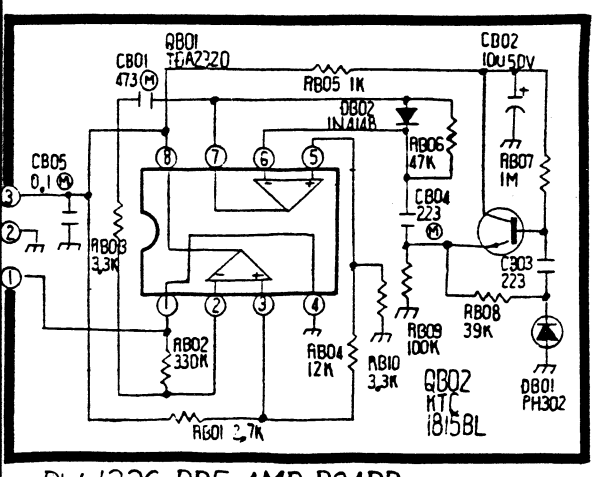


PW1609 CHROMA·BOARD





PW1227 TRANSMITTER BOARD



PW 1226 PRE AMP BOARD

** NOTE **

1. All resistors are 1/8W (±5%) carbon film resistor unless otherwise listed.
   Resistance unit is in ohm.
   K= 1,000 M=1,000,000

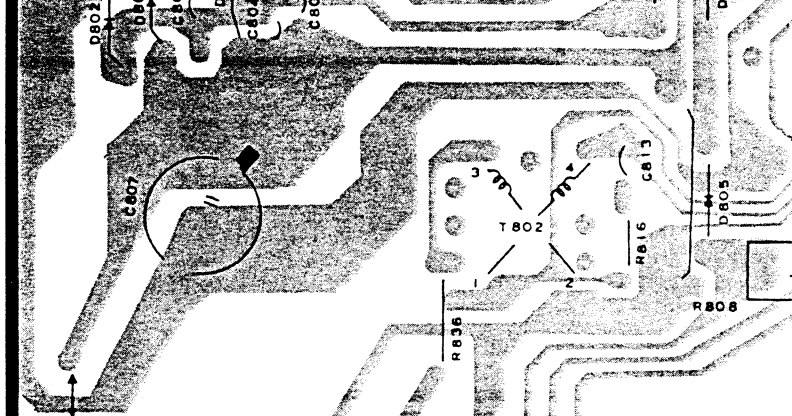
   1/2R: Metal or metal oxide 1/2W
   1/2S: Solid 1/2W
   1/2F: Fuse Resistor 1/2W
   10W : Cement Resistor 10W

2. All capacitors are 50V ceramic capacitor unless otherwise listed.
   Capacitance less than 1 are express in uF, and greater than 1 in pF.

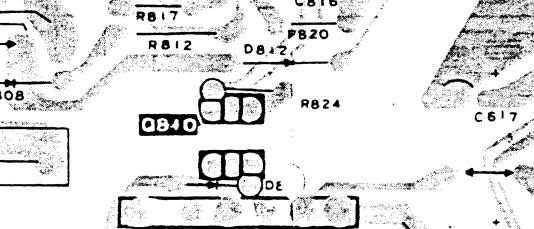
3. Voltages are measured with DVM from point indicated to chassis ground, using color bar signal with all controls at normal.

4. Waveforms are measured with synchroscope from point indicated to chassis ground, using color bar signal with all controls at normal.

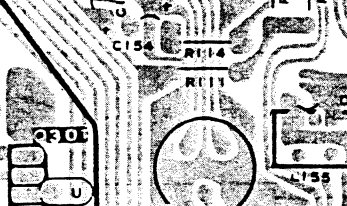
MAIN BOARD (PW-1621)



TRANSMITTER BOARD (PW-1227)

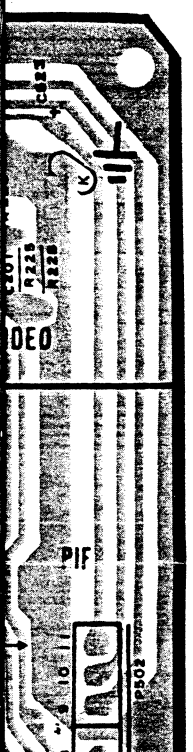


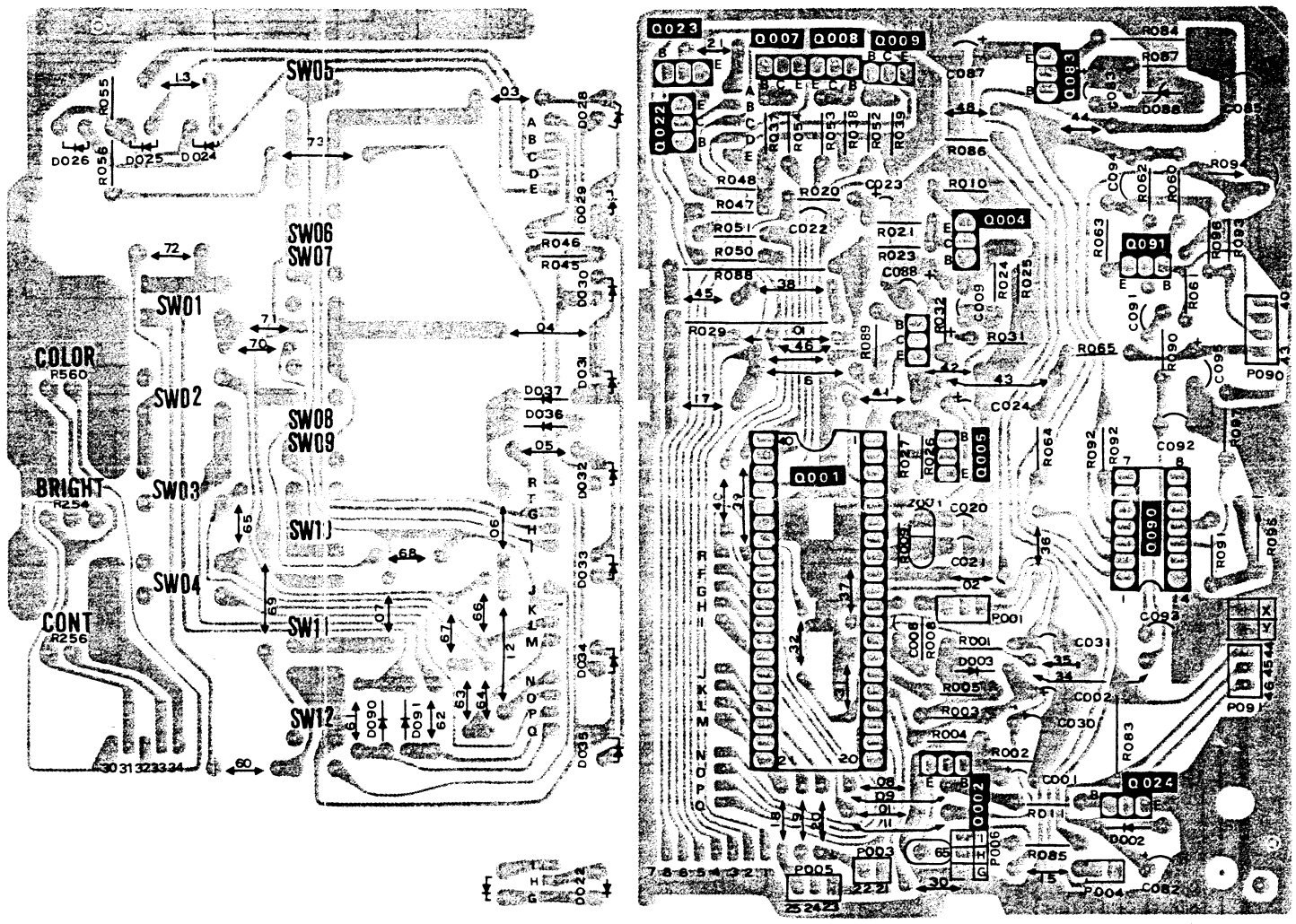
PRE-AMP BOARD (PW-1226)



VOLUME BOARD (PW-1624)

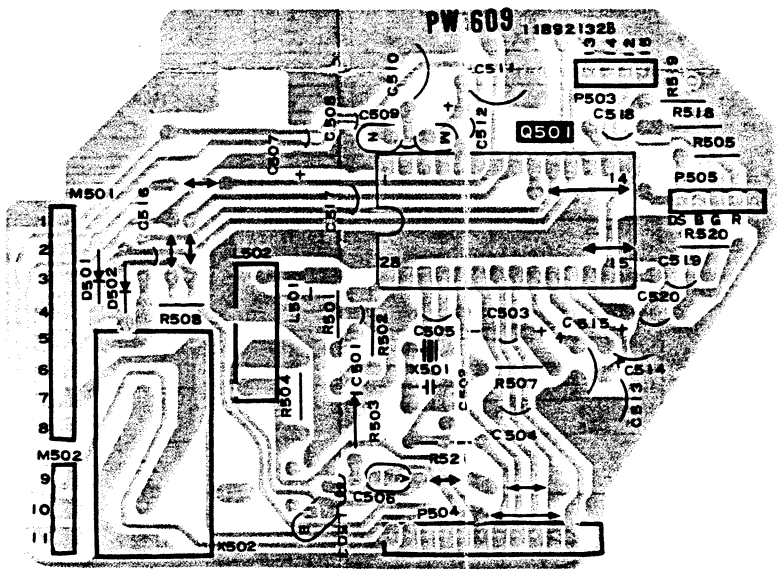
V 225



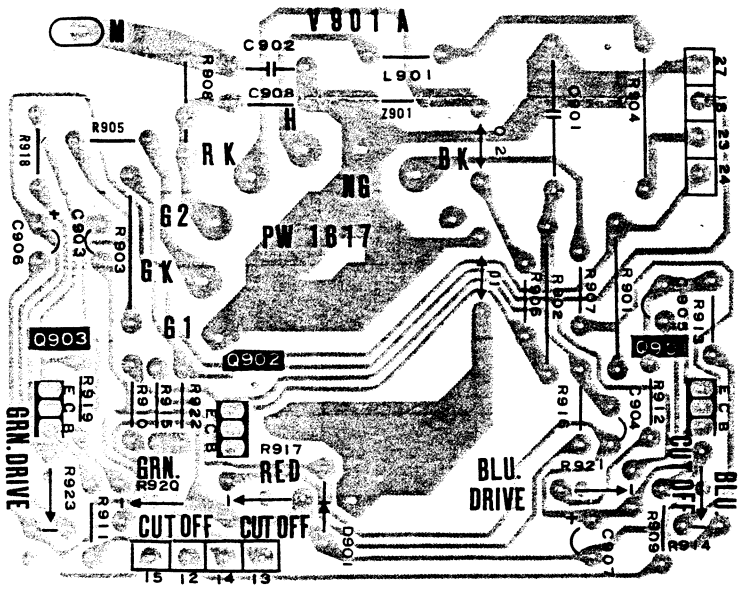


REMOCON BOARD (PW-1615-1, 2, 3)

W-1624)



CHROMA P.C.B (PW-1609)



CRT BOARD (PW-1617)